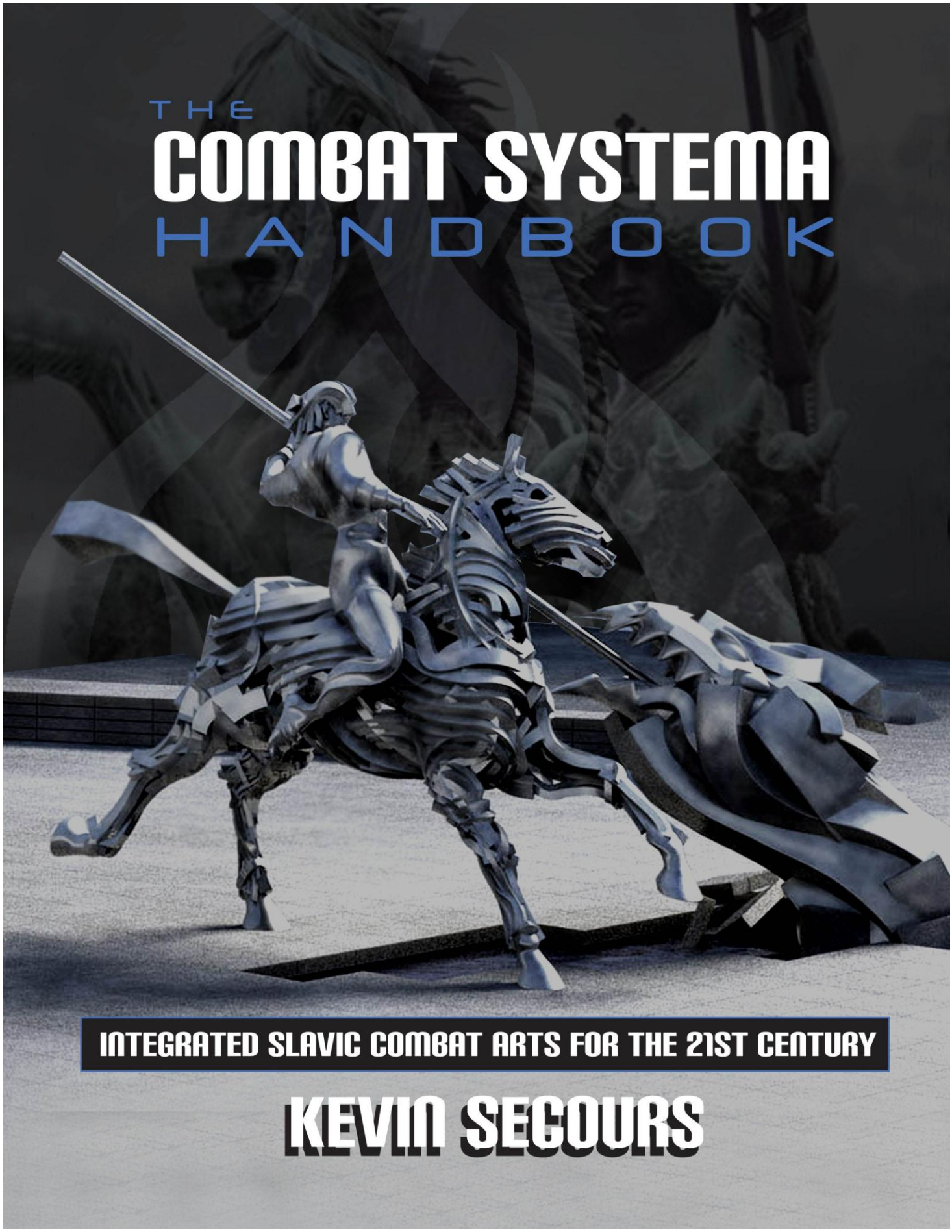
THE
COMBAT SYSTEMA
HANDBOOK
INTEGRATED SLAVIC COMBAT ARTS FOR THE 21ST CENTURY
KEVIN SECOURS

ABOUT THE COVER:

The legend of St. George slaying the dragon has been a symbolic tale told since before the crusades that embodied the ideal of Christendom slaying paganism. St. George carries a special significance in Russian Orthodoxy and is widely used in modern Russian iconography.

In our cover, we show the shadow of a classical sculpture of the legend in the faint background, being purged in the forge fires. In much the same way, the combative traditions upon which we are based are constantly being refined and distilled into our modern incarnation. In the foreground, we see the modern interpretation of St. George by sculptor Gil Bruvel rising from the ashes, a modern vanguard slaying the evils of ignorance and blind obedience to tradition.

Kevin Secours, *Combat Systema*, *The International Combat Systema Association, Integrated Fighting Systems, The Montreal Systema Academy*, their affiliates, officers and employees waive and disclaim any responsibility for damages or injuries resulting from the use of the information contained in this manual.

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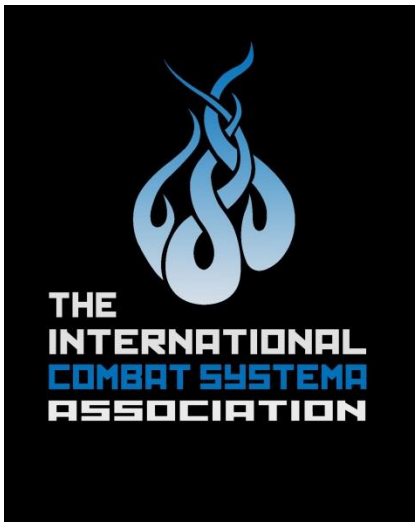

I would like to dedicate this manual to the students of *The Montreal Systema Academy, Integrated Fighting Systems* and *The International Combat Systema Association* worldwide. Your support, passion and tireless sharing have made this possible.

Special thanks to Pete Jensen for his copious references and suggestions in the structuring of this manual and to every practitioner who continues to pressure test these concepts to a higher degree of truth, stoking the fires of our forge.

Thank you most of all to my many teachers, particularly Vladimir Vasiliev. While my training has taken me on a different path from his, I will always regard him as one of the finest embodiments of the martial arts that I have met. Few men in the history of the martial arts have done more to promote a style than Vladimir has for his native country's *"Systema"*. A physical genius and an unconscious visionary, Vladimir introduced me to the beauty of the Russian martial arts and inspired a generation alongside me. I am forever in his debt. Thanks also to Aleksey Alekseyevich Kadochnikov and Alexander Retuinskih for the incredible foundations they have laid as the greatest living pioneers in the Russian martial art. Finally, thanks to Aleksandar Kostic for having introduced me to a broader world, for his inspiration and for his friendship.

"The toughest steel is forged in the hottest fires."

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FOREWARD:

In 2010, after almost 2 years of active debate and consideration, I made the difficult decision to break ties with my teacher and his organization. I will not belabor the many factors that contributed to my decision. It suffices to state that I left because I could no longer authentically follow my path as a practitioner and instructor under that mantle. When I left, I desired simply to continue exploring and training Systema, but very quickly people complained that it was dishonest to simply *"pretend"* as if nothing happened. What to do? Should I abandon any connection to Russian Systema and continue under the label of my school, Integrated Fighting Systems? Or, should I make an effort to remain in the Systema world and distinguish myself?

I decided to maintain an affiliation with the Systema label because I ultimately believed that my work was most significantly influenced by the Russian approach. Many have accused me of simply leeching off of the marketability of the name. In all fairness, the name Systema often carries more negative baggage and misconceptions than positive ones and in and of itself it is a far cry from a marketing boost. Rather, I deeply wished to promote an alternate perspective of Systema from what is readily available in the West. I had taken a long time to realize how big the Systema world was and there were many others I suspected that would appreciate my experiences.

I chose the name *"Combat Systema"* in an attempt to express my desire to focus on the science of the fight. Admittedly, fighting can have a broad connotation. Some could argue that all manner of health work, spirituality and contemplation are relevant to a warrior and therefore that any modality of training could be interpreted as relevant to combat. If a professional fighter plays cards to calm down or listens to an Ipod before going to the ring as one friend argued, couldn't card-game tactics and song selection for your playlist be relevant to the fight in some way? I concede that the answer is "yes" and *where* we ultimately decide to draw the line as individuals is arbitrary. I have chosen to limit myself to the nuts and bolts function of fighting, hence the name. Nothing more. I do not purport to offer gateways to salvation, cultural insight and appreciation or new age mysticism. Others have argued that I was in some way trying to denote that my training was somehow more extreme than other Systema. Nothing could be further from the truth. There are as many interpretations of Systema as there are people, each with their own merit. Many of these are far more "hardcore" than I would ever pretend to be. Again, in choosing the label, I simply meant to denote a focus on the fight and what works measurably, simply and most easily in a way that is clearly delivered and explained.

Ultimately, any name is a limitation but some degree of label is likely necessary. As William Barrett once noted, we must constantly make assumptions, label, summarize and pigeon-hole extraneous information in order to focus our limited mental resources on what is most relevant at any given moment. The famous thinker Krishnamurti ultimately decided that labels had to be abandoned all-together. In 1929, acting as the head of the contemplative association known as *The Order of the Star in the East*, he publically dissolved his group on the first day of their annual camp. During this speech, he said:

> "You may remember the story of how the devil and a friend of his were walking down the street, when they saw ahead of them a man stoop down and pick up something from the ground, look at it, and put it away in his pocket. The friend said to the devil, *"What did that man pick up?"*

> *"He picked up a piece of Truth,"* said the devil. *"This is a very bad business for you, then,"* said his friend. *"Oh, not at all,"* the devil replied. *"I am going to let him organize it."*

In the spirit of openness, I therefore preface this manual with the admission that this guide is my limited attempt to try and organize my thoughts and experiences and that in doing it, I am in effect inviting the devil in and ruining some degree of truth. There is danger inherent in the simple act of trying to organize anything. To borrow again from Krishnamurti, Truth is a pathless land and you cannot approach it by any one set way, only your *own* way. It cannot be organized nor should any organization be formed to lead or to coerce people along any one particular way. The moment you do so, as Bruce Lee so aptly noted, the truth becomes dead—an obsolete pattern, a sect or a religion. What was once broad becomes narrow. What was once relevant becomes pointless. Truth cannot be lowered down to base details—it must be ascended to by the individual. You can't bring a mountain top to the valley without losing everything that made it a summit. You must take your chances, face the risks and your fears and climb up to it.

The purpose of this manual therefore is not to create a structure or a limitation—**a cage remains a cage no matter how far apart and loose the bars are.** The purpose rather is to share my experiences. If they can help spark some realizations, fantastic. If they trigger powerful disagreement and further cement your existing views, excellent. If they can do anything to carry you further on your path to personal truth, amazing. This is NOT a rulebook. I was reluctant to even call it a "guidebook". If anything, it is a laundry list of my own limitations as a human, of my weakness as a practitioner, of my arrogance as an "organizer"—but maybe, it may also be a source of some comfort or clarity for someone honestly seeking.

The ultimate goal of my Combat Systema practice is increased freedom, increased detachment from impermanence and the dissolution of all limitations. In my personal practice and teaching I seek to free the student even from the limits of its own label. The outside world, particularly our modern culture of instant consumerism demands labels. As instructors, you will be asked *"What do you teach?"* If you choose to operate under the Combat Systema label, my only advice is that you make it yours. No one owns Truth. If some of these guidelines inspire you, then use them. If some contradict or impede you, change them or forget them entirely. Returning to Bruce Lee, absorb what is useful and ignore what is useless.

Be an honest vessel regardless of your label or lack thereof. Do not become a teacher that takes power from their students, be one that gives power. Students will often readily bestow praise upon you as a teacher. Do not take this. I am not talking about false humility here. I am talking about focus. Redirect their attention to their efforts and capacities, not yours. You may help point the way, but they have to do the work without shifting the praise or the blame to the teacher. As long as there is some division between the student and the teacher, there is no true self-realization. We must direct our powers towards ourselves, not give it to another. **Belief in the Master only creates the Master. Only belief in the individual can create the individual. In the end, you are the greatest expert on "you".**

I strongly urge you to make this manual yours. Do not make me, the banner of Combat Systema or any other practice into anything more than an equal partner in your journey. To quote Krishnamurti once more:

> *"You want to have your own gods–new gods instead of the old, new religions instead of the old, new forms instead of the old–all equally valueless, all barriers, all limitations, all crutches. Instead of old spiritual distinctions you have*

new spiritual distinctions, instead of old worships you have new worships. You are all depending for your spirituality on someone else, for your happiness on someone else, for your enlightenment on someone else."

Teachers do not make you free. Organizations don not make you free. Only you alone as an individual carry that power. As my good friend Alex Kostic says: *"Don't follow me, walk with me."* So in this spirit of open sharing, I humbly submit this work to you for whatever it may be worth.

THE COMBAT SYSTEMA HANDBOOK:

"It is doubtful that anyone truly understands the "real" way of strategy, much less truly lives it. Yet military leaders must have some understanding of strategy and they must pass it on to their warriors, regardless of the limitations of their own understanding."

—Miyamoto Musashi, The Book of Five Rings—

The primary purpose of this handbook is to disseminate the combative approach known as *Combat Systema.* Initially, I set out to create this to help guide instructors in their efforts to share this approach; hopefully however, the value of this manual will far exceed this scope and will extend to martial and combatives enthusiasts of all disciplines from the expert to the casual practitioner. In deciding to create this, I began with the simple mission of *"putting down everything you need to know".* As I often tell my students however, there is a massive difference between *simple* and *easy*. Getting to a mountain top is simple—you just have to go up the side. Getting up that side can be treacherous though. As I typed frantically away, eager to share my experiences, I realized that writing this manual was very much like that mountain. It was a simple process—just get it all out as fast as you can to support the affiliates in our association. The more I typed however, the more I realized that it would be nearly impossible. 1,000 pages in, I accepted that at best I would have to content myself with a thorough summary of key ideas and strategies. There is simply so much to convey, so many ideas, so many concepts, so many specific exercises, subtleties, stories and experiences, that it was often over-whelming. So what I submit to you here I submit with absolute humility. This handbook, like the style itself, is a work in progress—**it is a living, breathing document**. With every reader's feedback, with every shared experience, it grows richer, morphs and changes. I long ago abandoned any hopes of creating a masterpiece on an etch-a-sketch and resigned myself at least to say that this canvas will remain unsigned and could at any time be taken off the wall and painted over again, so please forgive any oversights or lacking that you may find in it.

Combat Systema is a modern combative system based on the integrated principles of the traditional *Slavic* martial arts, including most specifically, the consolidated interpretations used by Russian military Special Forces during the 20th Century. Many individuals are initially quite baffled to discover that Russia has its own independent heritage of martial traditions. *"Is it a fusion of Jujitsu and Karate? Is it like Krav Maga? What styles is it made from?"* As Toynbee wrote, we are prone to assuming that there is only "*…one river of civilization, our own, and that all others are either tributary to it or lost in the desert sands"*.[1] In world history, the Western world is certainly guilty of viewing the world through these prejudiced monocultural glasses, attempting and assuming a universal Anglophone world cultural perspective and relegating all other cultures to something secondary to its own. The modern shift towards a distinctly multicultural global community with a more distributed sharing of power certainly refutes the feasibility of this model. Within the domain of martial arts, the typical prejudice is somewhat different. Rather than being Western-oriented, there is a distinct tendency to allocate this same degree of importance and centrality to Asian culture, who through dominant marketing and

[1] Toynbee, 1948

broader academic study by the outside world have acquired an assumed proprietary dominance over martial traditions. If you ask most people where the martial arts *"come from"*, they will answer: Japan or China. Naturally, however, **every culture that has ever existed for any significant period of time has needed to develop its own independent combative traditions**. Through the tides of history, many of these cultural traditions were certainly lost and of those that remained, many were absorbed or integrated and greatly changed. One of the reasons Japan in particular continues to be so intriguing to enthusiasts of the martial arts is that it maintained a period of complete cultural isolation for hundreds of years, wherein it was able to forge completely unique cultural and combative concepts.

In exactly the same way, one of the most exceptional qualities of the Russian martial arts is precisely the uniqueness and relative purity of their tradition. Like Japan, this lays in the distinctness of Russian culture itself. Many scholars distinguish a separate Orthodox civilization that is centered in Russia and quite separate from Western Christendom. As Huntington notes, this is a result of Russia's Byzantine parentage, its distinct religion, 200 years of Tatar rule, bureaucratic despotism, and Russia's limited exposure to the Renaissance, Reformation, Enlightenment and other central Western experiences. In fact, in these distinctions Russia lacks six of the seven characteristics commonly used to define Western culture.[2] Huntington notes that only *three* civilizations were able to resist the onslaught of European expansion—*Russia, Japan* and *Ethiopia*—due in large part to the fact that they were all governed by highly centralized imperial authorities, through which they were able to maintain a meaningful independent existence.

Beyond its fierce independence, Russia also boasted powerful global influence in the 20th century which greatly affected the modern development of its combative arts. In 1917, as a result of the Russian Revolution, the global climate shifted dramatically from being dominated by the conflict of nation states towards the conflict of ideologies, beginning with *fascism*, *communism*, and liberal democracy and then later between the latter two. During the Cold War these two ideologies became embodied by the leading superpowers and set the stage for the world we live in today. The Russian martial arts were forged in the fires of these surging conflicts. They were designed in ambitious anticipation of widespread global warfare with an intensity of research and development infused into them that has rarely been matched throughout human history. Masses of focused wealth and research were funneled into their development. Honed in the shadows of Russian cultural independence, these mighty legacies were only revealed to the outside world at the very end of the 20th century, as ex-soldiers and operatives migrated beyond its borders and footage and texts from the greatest living masters began to slowly leak out.

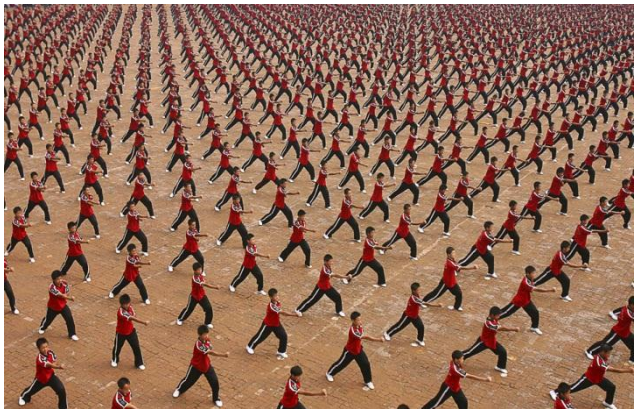
Combat Systema is **a first generation synthesis of these mighty traditions, derived directly from leading sources of this knowledge.** Above, I cautioned against the tendencies to perceive the world from a culturally-centric perspective. To fully appreciate and understand another culture, we must immerse ourselves in it to some degree and so throughout this handbook, I will attempt to convey the origins and intent of the traditions which we maintain. At the same time however, we must guard against becoming Russophiles, blindly assuming that all things Russian are somehow superior. Certainly, every culture has its strengths and its weaknesses. While an outsider myself, presumably lacking certain insights and deep affinities which a Russian practitioner may benefit from, I conversely benefit from a greater sense of objectivity in being outside of the

[2] Huntington, p44-52

cultural system that spawned these arts. As such, I do not pretend to be an expert on Russian culture and I will make little attempt to promote the *"Russian-ness"* of these arts. Quite contrarily, as a Western practitioner of a Russian art, I have intentionally set out to represent this material in a format and delivery that is suited to the **culture and ideologies of the Western practitioner**. Through my own practice and the shared studies of many passionate colleagues, we have gleaned from these rich martial blood-lines a complete personal protection solution that encompasses health, wellness and fitness, as well as tactics, strategies, and technical principles and skills.

Above all, *Combat Systema* is a **combat science**, which advocates a rigorous demand for empirical evidence. All training respects the established **3-pronged stress inoculation training protocol**:

1. **Education:** Training is the process of building *skills confidence* within the student. This confidence begins with providing training concepts clearly and succinctly. Students cannot consistently perform a new skill without first clearly understanding *what* the goal and justification of said method is. As Frederic Herzberg said: *"You can't blow an uncertain trumpet."* **It is therefore the responsibility of every instructor to find the best possible way to convey their teachings to the individual student.**



What type of learning environment are you creating for your students?

Some points to consider:

- **Have the respect to plan out your lessons.** Your students planned their day, their week and essentially even their lifestyle around making time to train with you. You owe them more respect than simply showing up. The outdated model of the guru sitting under the banyan tree with students groveling appreciatively for whatever fruits of wisdom fall from their divine nostrils are not nourished in Combat Systema. To quote *Rumi*, **the effective teacher should seek to destroy the idol which their students would make of them**. We are committed to teaching as equals on a shared path, as facilitators and guides rather than as prophets or oracles. Structuring your lesson is the first step in expressing that respect and the surest way to ensure that you provide a suitable warm-up, an efficient and safe progression of skills and resistance, the achievement of concrete goals and a healing or debriefing period.

- **Seek out contemporary research** to enhance your scope of knowledge. I am a professional educator by trade and an ex-corporate trainer. I've had the good fortune to train for industry leading corporations in countries around the world, from personal coaching to auditoriums of 500 students. Through this journey, I studied alongside some of the most sensational and masterful educators on the planet today. Through them I learned that **the best teachers remain**

passionate students. Learning is a journey, not a destination. The teacher that stops being a student, stops being. If you are intent on helping your students by becoming the best instructor that you can be, I strongly encourage you to study the craft of teaching just as passionately as the combative tactics that you espouse. Whether through self-education, formal training, or simply by mindfully monitoring and attempting to improve your presentation skills, the skilled instructor must take the art of teaching as seriously as the art of combat.

- **Remember that demonstrations are intended to illustrate and educate, not to impress**. Perform demonstrations for the benefit of your students. The purpose of the teacher is to make the student better. Your own personal attributes and physical capacities mean very little to the actual improvement of the student. As the old sales maxim goes, every client ultimately only wants to know *"what does this mean to me?"* In exactly the same way, the student seeks only learning and improvement. Remember this always, particularly when demonstrating. Explain *what* you are doing and *why* you are doing it. Bring attention to your own struggles and weaknesses. Encourage interpretation, not imitation.

- **Keep demonstrations *"bite-sized"*.** Avoid showing more than 2-3 key points per demo. Often it is best to demo for a moment, then to allow the students to play the concept for a round. Then stop them and repeat the demonstration with different emphasis. This type of incremental skill *chunking* is highly effective for ensuring comprehension and retention. Don't try to show everything at once.

- **Use concept-checking questions.** These encourage student involvement and test for actual understanding. These include questions like: *"So <u>why</u> is my elbow in this position?"* or *"What is the importance of using the outer forearm to deflect as opposed to the inner forearm?"* Avoid closed-ended questions like: *"Ok?"* unless you are trying to signal the end of a demo and move on to the practice phase, which brings us to the next point…

- **Keep explanations short.** Beyond our active efforts to keep things bite-sized, sometimes students will derail demos with excessive questioning. While answering questions is essential, over-cognition can turn a simple task into something too complex. If you feel the group is getting bogged down by excessive questioning, use closed ended questions to guide the demo to a close and move the group to the practice phase. Particularly problematic questions can be stalled with phrases like: *"We'll be getting to that in a moment."*

To borrow a phrase from combat researcher Bruce Siddle, the education phase is the period where you are *"soft wiring"* the students and initially loading the information into their short-term memory. Do not dwell here too long.

2. **Rehearsal:** Armed with a correct understanding, it is imperative that students next have the opportunity to mentally and physically explore the concept/technique. Tremendous care must be

taken here to provide a safe and nurturing environment for this work, with slow and mindful experimentation being heavily emphasized. Some key considerations include:

- **Students must be allowed to experience concepts.** Give them the time and space to freely play with an idea. Provide simple goals or guidelines for drills but ultimately allow them to find their own interpretation or solution.

- **When rehearsing, keep them below their *"flinch threshold"*.** There is a difference between *rehearsal* and *pressure testing*. If students rush through the early rehearsal stages, they will only succeed in reinforcing their existing errors and they will never correctly adopt the new skill. They must proceed **slowly** and **mindfully**.

- **Slowness should not be confused with easiness.** Training *should* be slow and mindful to allow for more rapid error correction as we will discuss further in our module on *Combat Psychology*. It must however still demand absolute focus, effort and struggle. As we will discuss in greater detail later on in this guide, **struggle is the strongest fuel for rapid growth**. As a general rule, training should be challenging enough that students struggle, but ultimately they should be allowed to experience success. You can't learn to swim if you drown the first time you encounter water.

- **We train with a partner, not an opponent.** A training partner that falls prey to their own ego or their own defensive reflexes will only succeed in shutting down their partner's opportunity to learn. It must constantly be reinforced during the rehearsal phase that this is not a competition. We exist as much for our partners as we do for ourselves. Teach your students how to work at their partner's level. The largest, strongest, most experienced student can still benefit from training with the smallest, weakest, least experienced student if they understand how to give their partner only what they are capable of taking and of finding insight and challenge within these limitations. We can all be injured, weakened, ill or otherwise diminished. Our familiar tactics and reliable attributes can always be stripped from us. Training with various partners allows us to replicate this experience and to explore areas we may not have otherwise considered. We must allow ourselves both to explore the concepts and to understand the goal, mechanics and various nuances of the work. This skill repetition is the *"hard wiring"* phase where new information is reinforced, synaptic connections are strengthened and the material is transferred from short-term memory to long-term memory.

- Various schools of the Russian martial arts refer to this slow and compliant phase of training as *slow work.* As there are numerous interpretations and criticisms of slow work, I would like to be extremely clear as to *Combat Systema's* view on the subject. **We believe that slow work is an essential phase in the learning process.** To use the analogy of learning to drive a car, slow work is the practice we do in the parking lot that leads to the quiet city streets and ultimately to the highway. Slow work is constantly necessary in the learning cycle as it allows the student to explore options, gain mobility, body intelligence and confidence, to physically feel and see themself

succeeding and to discover weaknesses and errors in their approach or limitations in their capacities. **Slow work is <u>not</u> however a complete training method in itself.** It relies on a strong education phase first to be informed and goal-driven. Students must know *what* they are trying to achieve with their slow work. Too many camps hide behind the banner of intuitive learning and in so doing fail to provide the basic parameters needed to maximize the benefits of slow work. Second, **pressure testing must follow slow work**, as we shall see in the third component of our process.

- When performing slow work, it is imperative that all participants move at **congruent speeds**. Too often, defenders allow themselves to become over excited and to move at disproportionately quicker speeds. Take a quick survey of some of the top masters of Systema on the net from any style. Watch any clip through entirely. We naturally tend to watch the expert working. Then re-watch the clip studying only the mock attackers. By re-watching the clip with focus on the attacker, you will quickly notice that most clips are not *"alive"*. Attackers are often like zombies, moving much slower than their defenders and generally leaving their attacks hanging in the air. There are many factors at play here that hold strong parallels to hypnotic states. As Mentalist Derren Brown has noted in his book *"Tricks of the Mind",* it is difficult to know for sure what is occurring in hypnotic dynamics whether in the laboratory or a performance venue. He noted a few factors are likely at play including:


Mentalist Derren Brown

  - **SHARED BENEFIT: First, the subject may simply be faking**. In the case of martial demonstrations, there can be a vested interest in making the master or instructor appear to be extremely proficient. Their proficiency justifies the student's allegiance to the teacher or the style and ultimately serves to strengthen the reputation of the company/business of the style itself.

  - **EMBARASSMENT: Second, the subject may consciously be faking his attacks** and pulling his punches only because he is embarrassed by the entire experience. Moreover, social pressure is extremely powerful and can contribute to this feeling. In many martial lineages, I have seen instructors chip away at students' self-image by saying:

    - *"What I just did would have worked on you if you weren't* so *tense."*
    - *"I can't show the work because your organs aren't ready to take these types of hits."*
    - *"No one would attack like that in reality. You were able to do that only because you know what I am trying to do."*

Even if we give the speakers of these comments the benefit of the doubt and assume they were truly well-intended, very little changes—these comments still remain poisonous to the recipient's self-image and skills confidence. Moreover, whether intentional or not, they foster the growth of a cultish, flock mentality and create followers not free-thinkers.

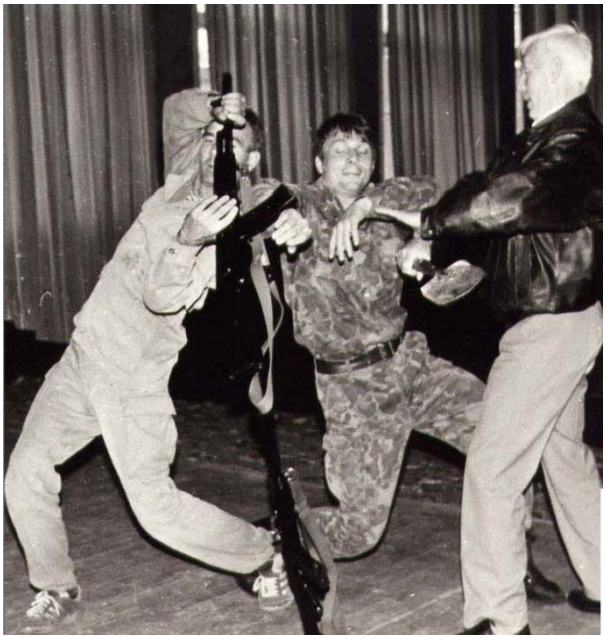
- **PERSONAL EXPLORATION:** Third, **the subject is consciously trying to help the process along in order to optimize his experience**. A student might sometimes admit that they didn't want to block the teacher's energy or that they were trying to explore their own fear and tension. While superficially, these comments sound like valid justifications for cooperation, they could potentially detract from the objective at hand—namely, to learn valid, real-world self-defense skills.

- **PLAYING THE PART:** Fourth, **the subject simply has an out-going, effusive personality and is happy to be a part of the show**. As Brown notes, these people are most likely to genuinely feel something from the state, often inexplicable energies, etc.

- **HUMILITY:** A fifth component of suggestion which Brown does not discuss but which I have noticed arises particularly in martial demonstrations, is that **the mock attacker is simply fully ego-formed and confident in their own capacities**. They consciously recognize that the demonstration is forced and ineffective but they have no need to rock the boat or express their beliefs. Many honest seekers in the martial realm, particularly those with a clear structure to their beliefs and real-world experience and success, would rather let sleeping dogs lie and move on. Much like a religious person in some other denomination's temple—if you are secure in your own beliefs, there is no need to mock, preach or actively try to convert another. You simply glean what you can from the experience, certain that you believe otherwise and then confidently move on.

- Directly connected to relative speed, is **realistic trajectory**. Often, by getting lost in the slowness of the drill, students on both sides begin performing complex spirals and snaking paths in their strikes, creating fantastical cinematic combat hyperboles. If you have a chance to youtube the Russian master *Alexei Kadochnikov*, he is particularly prone to this. A scientist at heart, his passion for exploring the *geometry of combat* often leads him to rotate his blocks and deflections 3-4 times versus a single straight punch, like some heat-seeking missile with a defective guidance chip, before ultimately retaliating. His enthusiasm is admirable and perhaps even justified as an instructional method to exhibit movement potential. I say this with the utmost respect. Kadochnikov is widely considered the grandfather of Russian Systema. He is responsible for interpreting Spridonov's Samoz into the modern lineage that we enjoy today. More than anyone in modern history, Kadochnikov has structured, clarified and streamlined a wealth of information into a highly focused laser of knowledge. His work is deeply inspirational

to me. That being said, a general lack of hard training and pressure testing in his style, often leads to an excessive continuance of this style of soft and complex work and many practitioners that I have trained with from his tradition do not distinguish between the compliant learning modality and actual combative application. Those practitioners that do pressure test naturally edit and refine their work into something far more realistic. This is seen particularly in the many off-shoots of Kadochnikov Systema, which include most notably Alexander Reutinskih's R.O.S.S.



Kadochnikov performing a complex spiral deflection simultaneously against two attackers.

Simply by giving occasional attention to monitoring your relative speeds during slow training, you will vastly enhance the benefits that you receive from the experience. Make every effort to show students that it's possible to train slowly, safely, and intelligently, but to still have intensity. If you begin with a correct combative mindset and allow yourself to get into the various mindsets of an attacker or defender, if you allow yourself to seethe with quiet rage when you play the aggressor or to feel the threat and surprise of an ambush as a defender, you will quickly see that the speeds in slow training will regulate and that the crazy trajectories will disappear.

3. **Pressure Testing:** The third and final component of the learning cycle is to pressure test the technique. Pressure testing simply involves experimenting with the technique or principle at hand against a more resistant partner or within a more challenging dynamic. Many people wrongly assume that pressure testing means you need to don protective gear and spar full out. In reality, the degree of pressure testing can vary widely. Naturally, it is impossible to ever fully replicate the realities of combat without actually fighting and since no sane human is willing to train in an environment where students are constantly being maimed or killed, the entire notion of *"full contact"* training is a misnomer. **At best, we are seeking to find the balance between the degrees of resistance that we find *necessary* to cement and solidify our individual skills confidence with the degree of *risk* each of us is reasonably willing to endure for the sake of training.** As I have said elsewhere, there is no logic in replacing the *possibility* of one day getting attacked and hurt in the street, with the absolute certainty of getting maimed in the training hall every single night. The avoidance of injury and death is precisely *why* we are training in the first place. To paraphrase combatives expert Tony Blauer, we must decide what degree of lie we are willing to settle for in our training. At best, pressure testing is an imperfect measure of combat proficiency, but at the very least it is a more accurate measure than noncontact environments. As Bruce Lee noted so succinctly:

"You can't learn to swim standing on the beach."

As I mentioned earlier, you also can't learn to swim if you drown the second you hit the water. The secret is to find the balance somewhere in between being over-whelmed and completely uninvolved.

Many schools of Russian Systema have built a reputation on their refusal to use mats or any type of protective equipment. They note that rolling on cement and hardwood floors is more real and provides superior awareness. They criticize protective gear for removing sensitivity. There is definitely logic in what they are promoting. Absolutely, learning to roll and flow on a hard surface does massively increase your sensitivity whereas learning the same movements on a matted surface dilutes the reality. I strongly encourage working on hard surfaces to gauge and improve your flow. I do not believe that mats are the spawns of Satan. There are major advantages to training on mats. Mats greatly reduce the risk of injury. If you are a teacher, rolling for hours every day, hard floors can make intense schedules very destructive on your body. If your school has professionals in it who can't afford to be visibly mangled in their jobs or simply older individuals who don't want to feel injured every morning after they train, you may have a hard time logically marketing the idea of rolling on hard floors. Mats may simply be necessary depending on the nature of the work that you do. For example, if you want to seriously train throws, mats, grass or sand will make thousands of repetitions survivable. A hardwood floor is just far too risky for this type of study. Depending on where you teach, mats may even be legally required for insurance purposes. By all means, hard floors *are* a good form of pressure testing. In some cases, depending on what environments we have available to us, hard floors may be all that we have at our immediate disposal. For some of us, hard floors may truly be preferable. The nature of training must obviously be modified somewhat when mats are not used or else the degree of safety will be affected at higher speeds and contact levels.

Instructor Michael Trussler copes with two attackers in this street *"sucker-punch"* simulation.

Both hard floors and mats are beneficial in their own ways. Neither should be frowned upon or overly-celebrated. To close, I'll share a story from a few years back. A burly Russian with biceps bigger than my head came to try a class at my school. He scoffed that my students were soft like the mats they lay on after being in the school 3 minutes. Certainly, this type of arrogance is nothing new in the industry and not unique to one style or another, nor is it the exclusive domain of any culture. This gentleman simply felt that as a Russian, he instinctively understood a Russian martial art better than a non-Russian instructor or non-Russian students. Egos run wild in the martial arts. He insisted that mats were good for babies to sleep on and laughed openly in my face. During the class, he partnered up with an a young wiry lad who was easily 50 pounds lighter than him and built like an angry wire coat hanger. My student had a fair amount of experience in Jujitsu and Sambo at this point, had boxed a little and was decent in Systema. He was all function, a braid of misshapen tendons, with

ears that looked like bad origami and a glazed stare that made his constant smile seem menacing. My student had trained on the softness of mats his entire life, from wrestling mats, to boxing rings to my tatamis. He had never trained on hard wood floors and only on a few occasions with me had he trained in the woods, on grass or asphalt, yet somehow, my student summarily handled the much larger newcomer for 90 minutes. The indignant guest grew angry very quickly, peaked, gassed and then never seemed to get a second wind. To the giant's credit, he was too tough or perhaps too arrogant to quit. Still, after being thrown around like a lone sock in a dryer for over an hour, he left quietly and never came back. Presumably, he is training on gravel and crushed glass somewhere back home as I write this. I remember him and others like him every time I encounter *"mat arrogance"*.

***"Pressure Testing"* doesn't have to mean dangerous degrees of contact. It simply means adding new stressors that will help prepare you for the street.**

Directly connected to mats are the issue of protective gear. Gloves and hand wraps can absolutely hide and encourage weak tendons and poor striking form. Training exclusively with gloves and never with bare hands can massively skew sensitivity and understanding of alignment. **Wearing gloves alone however does not guarantee these weaknesses**. If I want to reduce the risk of fractures to the hand, gloves are the logical choice for harder bouts of contact. If I want to work finger jabs and gouges to the eyes, helmets and visors are similarly indispensable lest I satisfy myself with a dynamic game of air tag. Pads permit greater contact at fuller speeds (again, not necessarily true full contact, but greater contact nevertheless) and **without some degree of dynamic contact, considerations of timing and distance will always be flawed**. A very reputed RMA master once told me that wearing a mouthpiece was indicative of the fear I was carrying in my teeth. I respectfully regard this as psycho-mystical mumbo jumbo. Teeth are not *just* a vanity issue. They affect food digestion and overall health. We only get one set. Wanting to protect them may be a form of fear, but it is what I would classify as an intelligent fear. I similarly don't want to get a sharp knife run through my hand in slow disarm drills, I don't want to have my eyes spooned out during basic grappling work and I don't want to have my testicles crushes during kick practice. For me, this type of opposition to protective gear is a classic example of getting lost in the ideology. I firmly believe that the occasional inclusion of harder and faster work while wearing protective gear, although sloppier and less sensitive, better prepares individuals for the distance, timing and stress factors of actual combat, than slower, more controlled bare-knuckle work exclusively.

I am also of the opinion that the lack of protective equipment was a reflection of Soviet era financial restrictions that were later couched in ideological rhetoric. While there certainly is an advantage in learning the foundations of combat and continually reinforcing sensitivity and structure through bare-knuckle work (for lack of a better term), protective equipment is just a matter of common sense once the force levels get high enough.

I once saw a clip on youtube of Russian soldiers shooting each other with lives rounds in the chest and head to test precision while wearing helmets and bullet proof vests. Again, while some may find this level of commitment impressive, or argue that at their level of professionalism it is necessary, it just seems crazy to me and needlessly risky. It seems like a poor use of an investment to devote so many resources to improving an individual only to destroy them with a single bad shot. To each their own.

Similarly, Systema is renowned for advocating the use of rigid training knives. Certainly, much of the work depends on it, so that students can poke into one another and experience the trajectory and improve their body intelligence. Exclusively using hard knives however, as is common in the great majority of RMA, is again excessive and limiting. If I want to train rapid fire abdominal stabs (one of the most common types of attacks you are likely to face on the street), my work will be far less *"real"* if I am required to reduce penetration and speed to the point where using a hard knife is safe. Anyone who claims to train full speed and full force with a hard training knife is delusional. An aluminum training knife will split a ballistic visor—a rubber knife will not. An aluminum training knife, no matter how dull, will impale a partner or at least rupture organs and break ribs. A rubber knife is very unlikely to—the fist behind the rubber knife remains the greater threat but still does not compare to the reduced surface area and strength of a rigid knife. Certainly, I use rigid knives 95% of the time at reduced speeds, reduced power and reduced targets, but when it comes down to letting things get messy, allowing students to genuinely attack me and allowing myself to experience the true *"worst case scenario"* I am capable of safely experiencing in training, a rubber knife is necessary and even then a degree of control and caution must always remain. Any RMA practitioner who complains that he or she would have performed infinitely better against a solid knife, because the majority of their nifty strips and disarms that work against the rigidity of the blade were impossible against a flexible knife, is again drinking too much of the ideological Kool-Aid. Those micro-movements may arguably still have a place in sensitivity training, perhaps even marginally in actual combat, but they are not the difference between life and death in a more authentic training dynamic the majority of the time.

When you see a rubber training knife bending like this against a throat, ask yourself would you rather receive this blow with a rigid training knife?

It must be remembered that pressure testing covers a wide spectrum of possibilities. It simply represents testing material against more resistance. It should not always be equated to full speed and power resistance. In fact, the line between compliant rehearsal and actual pressure testing can overlap quite subtly. Exercises with increased variables, like

If you might face it on the street, train it in the gym.

striking against moving pads, working with respiratory limitations, moving against multiple attackers (even slowly) can be extremely difficult and constitute an increased degree of pressure over ideal rehearsal. One step sparring drills like finger jabbing or gouging a partner wearing a helmet as they grapple you, stop kicking a moderately fast zombie attacker wearing a chest pad, or even complex focus mitt drills, can all provide a greater degree of challenge than static repetitions. Any drill that integrates any greater degree of stress that succeeds in increasing the challenge the student is experiencing is considered pressure testing and is ultimately essential in strengthening skill confidence and understanding of the reality of dynamic combat. Naturally, pressure testing should involve psychological and behavioral components as well as we will see. Simulations of all types are essential, from sucker punches to verbal de-escalation to detection and avoidance drills. If you might face it on the street, train it in the gym. If you don't train it, you can't realistically expect the reflex to be ready when you need it.

A final note on pressure testing: naturally, we all understand that physical safety is of paramount importance. Having adequate preparation, appropriate training gear and clearly defined parameters is essential if you wish to guarantee a safe and fulfilling training experience. One aspect of health and safety that is often over-looked however is **psychological safety**. While pressure testing can be challenging, it should not be over-whelming. As we will see later on, a sense of feeling over-whelmed by any experience is a key component of experiencing post-traumatic stress. It should provide obstacles and induce struggle, but it should ultimately permit success. We will discuss the role of struggle, errors and victory in far more depth in our module on *Combat Psychology*, but at this juncture, just remember that you can dominate, bully and kill your students over and over again in drills and simulations if you feel they are managing it and succeeding more than they are failing, but ultimately you must let them succeed. This is particularly important when they are about to go out the door and return home. Slow things down, limit the drill, **do whatever it takes, to allow every student to seal their experience with success.** Everyone walks in a student and though we may crawl through hell throughout the middle of the class, EVERYONE must walk out a survivor, lest you risk planting deep psychological weaknesses in their infrastructures.

I personally am fond of using a specific 2-step approach to end lessons:

1. **Slow it down.** Physically slow the drill down to ridiculously slow speeds—think Tai Chi in slow motion. At this phase in the training, it's impossible to go too slowly, only too quickly. Students are encouraged to act, to bear authentic intensity when attacking and authentic responses, (albeit dramatically slow responses) to every attack. This allows students to review what they have learned during that session. Often, the most pessimistic and self-image damaged among us will refuse to participate, saying, *"What's the point?" "I suck!" "Of course I can do it at this speed."* Use whatever tools of influence you must, grab the student, distract them, just pull them into the slow work with you, but get them moving and focusing on continuous movement and breathing until they are lost in some degree of the flow. Keep on keeping on. This is what we refer to as the *reflex of continuance.*

2. **Visualize.** I generally like to follow this slow motion recap by having students lay down on their backs, arms by their sides, feet comfortably apart, eyes closed and palms facing the ceiling. I always begin with

some form of relaxation, which generally consists of an increased awareness of breathing, selective contractions, and progressive relaxation (which we will discuss in our treatment of healing work). After a few minutes of relaxation work, students will be more responsive and suggestible. At this point, I lead them through a visualization exercise. Remind students that their visualization is their own private experience. They will not be required to discuss this aspect of their training. Always guide the student through a detailed visualization of a self-defense scenario that builds off of the work you have just completed. Encourage them to vividly create a mental image that addresses all 5 senses, guiding them through each sense, one at a time:

- **Where** are you?
- **What time** of day is it?
- What is the **temperature**?
- What is your **physical state**? (*tired, hungry, injured, sick*)
- How do you **feel**?
- What do you **smell**?
- What do you **taste**? (are you injured, bleeding, nervous and acidic)

In our minds we are entitled to be perfect.

I repeat these steps with the attacker(s) leading them step-by-step through a complete visualization of the attack and have them focus on how the attacker appears to be feeling as well in this visualization. Then I have them engage and survive, perfectly, smoothly, efficiently, powerfully and confidently. In our minds we are entitled to be perfect. I have them *feel* what it feels like to flawlessly execute these movements. I have them *see* what they look like as they watch the virtual screen in their mind's eye. I have them end the encounter and flee to safety, even treat wounds or assess their danger and completely seal the experience with success. Then I lead them back to the present situation, by spending a moment or two focusing on their breath. Again, we will cover this in greater detail elsewhere in this manual but this type of debriefing is a hugely powerful tool after physically resistant training that allows students to reframe their experience and appreciate what could otherwise be a generally demoralizing experience.

3. A third and final option that is extremely helpful and characteristic of Systema is the *kroog* or circle of friends. Have students sit in a circle and share their experiences and insights. I am not a fan of forcing every student to talk. Some are simply not verbal. I feel that forced discussions become laboriously redundant in larger groups and lose authenticity. Instead, I lead with an assessment, my own personal

experiences, my own personal weaknesses, then I encourage anyone to speak who wishes to speak. Some nights, students won't stop talking. Other nights, the group is more mindful and unwilling to injure the silence with the clumsiness of words, and they are content to smile, nod and digest what they've seen. Whatever the mood, it's always the perfect end to a rough day of training.

DISTINCTIONS BETWEEN OTHER SCHOOLS OF SYSTEMA:

"Systema", literally *"The System"* is a generic term that was used to describe the combative approach developed by the Soviet government for their Special Forces teams. A hybrid of Slavic cultural fighting systems, it additionally included a fusion of Asian strategies following decades of targeted research and testing of the Asian martial arts and a thorough adaptation of the resulting fusion to the modern and specialized needs of the teams that would be using it. Given the high degree of individuality and creativity cultivated by the approach, every instructor left a profound influence on the interpretation that they taught. **All Systema are certainly not created equally.** In reality, we are fond of saying that there are as many Systema as there are practitioners. However, schools generally follow general concepts and ideologies and since Systema is still far less well known than other arts, every instructor should have a clear idea of what makes their approach unique:

1. **Combat Systema advocates and encourages cross-training.** While other camps are fond of saying that Systema is just that, a *complete system*, without the need of outside influence or input, *Combat Systema* is committed to the scientific search for truth. The Russian martial arts are hybrids by their nature, perhaps more so than any other martial system in history. They are defined by a diverse geography and a history of influence from constant invasion and foreign occupation. They are founded on adaptability. *Combat Systema* therefore believes that the truest interpretation of this lineage is the continued study, research and improvement of this method including the consideration of outside approaches in order to best respond to the enemies of an ever-changing world.

2. **Combat Systema demands pressure testing.** While other approaches will argue that they pressure test, they do so in far more homogenous and less variable drills. Pressure testing for us is less about the degree of contact and more about the degree of honesty. Even the slowest training should be organic, strikes should snap and not always linger, students should react honestly, attackers should be adaptive and not purely robotic or zombie-like. Pressure testing is about psychological intention and combat mindset more than it is simply about increasing or maximizing physical contact.

A resistant gun defense drill with protective equipment.

3. As mentioned, **Combat Systema advocates the use of protective gear.** Mats, helmets, gloves, rubber knives and any other piece of equipment that will help replicate the rhythm and sensation of reality and better prepare a student are fully and wholeheartedly embraced.

4. **Combat Systema believes in technique.** While principle-based like most schools of Systema, Combat Systema believes that students must still be shown interpretations of these principles. There *is* a technical way that a gun must be loaded. Giving students a gun and a clip of ammo and having them just play around until they hopefully figure it out is not only time-consuming but also dangerous. Instead, if they understand the mechanical principles of the gun, the safety measures necessary for handling a gun and then are show a few basic techniques for loading the gun, they will then be in a better place to safely benefit from more organic free play. In exactly the same way, specific punches, deflections, escapes and locks *are* shown. Even more than specific techniques, dynamics are very tightly isolated in early training. Students may have to shrug and slip out of headlock attempts, or seek to use a specific type of strike against a moving opponent, etc. In this way, they not only repeat the strike to hardwire their nervous system, but also instinctively learn when the measure is appropriate and when it is forced.

5. **Combat Systema believes in a structured curriculum.** All subject matter is divided and organized to provide students with a comprehensive understanding of what they are learning. Certification and short-term goals and awards are used to help motivate students as well; beyond being easier to comprehend for the student, it also allows instructors to monitor and manage their treatment of material, ensuring a more equitable coverage of all subject matter. Additionally, it makes integration of the curriculum into organizations and formal establishments more palatable and viable when the path and goals of the course can clearly be shown.

6. **Combat Systema is purely secular and open to students of all cultures, races and religious belief.** Some lineages of Systema are deeply-rooted in Russian Orthodox Christianity. Others maintain strong affinities for early Cossack folk beliefs. While personal faith is not inherently exclusionary or necessarily oppositional to alternative beliefs, through my experience, the heavy infusion of religion can be quite alienating for many non-Orthodox participants. I have heard Systema masters refer to Systema as the art of god, saying that Asian systems were subsequently godless and even that the practice of kata invited demons. Once, I witnessed a renowned master get asked what physical exercises or breath work would be most helpful for his autistic son. After a series of counter-questions, the master finally responded that the gentleman's son was in fact likely autistic as a punishment from God for having conceived him on the lord's day. The solution was prayer for the penance of the father—the son's soul it was announced was already condemned. I am not concerned with judging the content of the message. Individuals are free to believe what they wish. It was an honest message and genuinely intended to help the practitioner. I am simply stating that I do not share these judgments and find no place for them in scientific, progressive, and all-inclusive martial training.

7. Some Systemas are adamantly against the idea of stances. In interpreting the ideals of adaptability and relaxation, they believe that raising the hands to prepare for a fight is counter-productive. Students are

encouraged to keep their hands low and near the waist (the so called jogging position) in order to avoid adding fear or tension to their nervous Systema. Other approaches, such as Reutinskih's R.O.S.S., openly embrace stances and basic ready positions and deflections. In the Combat Systema interpretation, various types of preparatory or preloaded positions are endorsed, such as submissive or conversational stances during verbal de-escalations, various holding positions for weapons and even boxer-like stances during combat. Since this can be an area of confusion for many people, here are a few key points to keep in mind:

- While relaxation and correct body structure are important considerations in our work, **personal safety comes first**. There are times, when over-whelmed by a barrage of strikes for example, it might be impossible to evade or side-step. It would therefore be absolutely imperative that you shield or cover up with your arms and hands to survive the onslaught. The word *"form"* is often used in Systema to describe keeping the components of the body aligned whenever possible. I feel the word **structure** is perhaps a more accurate descriptive since *form* often conjures implications of formality and rigidity, whereas *structure* is somehow less judgmental and refers only to the relationship of the components of the body in a mechanical sense. We want to be aware of structure—or how the various components of our body are stacked or relating to each other, and we want to seek to keep them in the most efficient and economical relationship for any given circumstance. We do not want to confuse this with blindly adhering to dogma or getting lost in the idea of posture and walk around like a runway model balancing a book on our head.

- Furthermore, in discussing relaxation, it is important to realize as I've written in my blog, that tension in and of itself is **not** a bad word. Some degree of tension is necessary to remain standing or simply to move, no matter how relaxed you may be. Sometimes, even high degrees of tension are required to provide a burst of energy or to survive harm. Again, a better term than "relaxation" is perhaps the idea of *"efficiency"*. By all means, whenever possible, seek to keep the body stacked and in alignment, not slouching or stooped. Seek to move gracefully and calmly and smoothly whenever possible. When you are faced with the decision to get punched in the face or to survive however, survive, through any means necessary. Lean and bend if you need to bend. Shield if you need to shield, but seek to do so efficiently, without needless tension or wasted movement. The neck is a lever. If you were born with a long and slim neck like I was, the idea of keeping it fully elongated during a fight like a curious merekat at all times just because it is good form seems to fly in the face of logic and basic physics. The longer the lever of my neck is, the more force is compounded and conveyed to my head at the end of it when struck. By comparison, simply hunching the shoulders just a little, in effect shortening the neck by hiding and supporting it with the shoulders, is an easy and self-evident step to avoiding knockouts during an exchange. Counter-arguments that a long and natural neck is more relaxed and more able to absorb the force of a strike do not hold up in the forge of pressure testing. If it did, boxers would have figured it out by now and they would be using it to win millions of dollars as world champions. By all means, posture and alignment are essential during some

combat phases, for example when maintaining your base in grappling on the ground, or often during the clinch, even when slipping on the outer range of strikes, but when things are compressed, close and fierce, there is a time to balance ideals with practicality and to hunch like a prudent gorilla to survive.

- Given this rule of efficiency**, we do not seek complex postures**. Since I used the word gorilla in the previous sentence, I will be extra clear here and note that we also do not actually attempt to imitate the morphology or attitudes of animals as advocated in some kung-fu styles. When we stand, we stand as bipeds, in the manner most balanced and efficient for bipeds.

- Defensive postures should still not be fixed. When 2 fighters enter the ring in sport, they know *why* they are there therefore it is logical for them to keep their hands in certain positions. Depending on the rules, they know what type of weapons they can expect to face and so they adjust accordingly; a boxer for example can afford to lean more weight on their lead leg since there is no risk of leg kicks or being tackled. An MMA fighter by comparison will stay more frontally aligned with their opponent so they can raise their leg to shield against kicks or push their hips back in order to sprawl when countering takedown attempts. As we will discuss later, legally and within the scope of de-escalating a conflict, there is little advantage in manifesting aggression, raising your fists or otherwise indicating your willingness to fight. The hands should be kept natural, generally open, and they should move as naturally and continuously as possible during pre-engagement dynamics. Once the attacks start however, it is often more effective to tuck the arms, screwing them into the body to offer our more durable outer forearms towards the opponent. Shielding should be kept in close to the body and we should avoid whenever possible reaching and elongating towards attacks, which only serves to make us more vulnerable and encourage freezing and less footwork. Instead, keep the body compact and invest in footwork.

Josh Barnett squares off with Mirko Crocop.

We will address the subtleties and nuances of the mechanics of stance, shielding and all related topics in much greater detail during our discussion of hand-to-hand tactics and strategies. At this point, we wish only to emphasize a key distinction in our interpretation of style.

THE PILLARS OF SYSTEMA:

Russian Systema is widely regarded as being founded on four basic principles which are commonly known as the four *pillars* of the system. These were originally promoted by Ryabko Systema but interpretations can vary widely.

PILLAR 1-BREATHING:

"From the breath that marks the beginning of life to the breath that marks the end, breathing is a basic behavioral expression of the psychological and physiological state of human beings."
—Ronald Ley—

Breathwork is the absolute foundation of every aspect of Combat Systema. Breathing is unique among body functions. It is one of only two body functions which can be either *autonomic* (occurring involuntarily) or *conscious* (a distinction it shares only with blinking). The natural limitations of conscious breath control include the breaking point of breath holding at one end of the spectrum and the loss of consciousness by hyperventilation at the opposite extreme.[3] Unlike blinking, breathing is more than just versatile—it is a **bridge** between *psychology* and *physiology*. When performed consciously, it allows us to indirectly control the other autonomic functions of our body which would otherwise be beyond the reach of our control (namely our pulse, our emotions, our degree of relaxation and our focus). Throughout the history of religious, spiritual and martial traditions, breathing has therefore long been recognized as a key component of both health and combat functionality. From the *Chi Kung* of the Chinese martial arts, the meditation practices of *Zen Buddhism*, from *Yoga*, to prayer trances and a host of other pursuits, breathing has been a subject of intense exploration and study for thousands of years.

Despite the enormous importance of breathing, finding clear and reliable instruction on the matter can be surprisingly difficult. Many traditions have intentionally couched their work in secrecy. Others have been eroded by generations of miscommunication and mistranslation until the essential subtleties have been completely lost. Still other traditions are convoluted by mystical terms to explain phenomenon that could not previously be fully understood. Until very recently in fact, the inner mechanics of breathing were beyond the scope of technical measurement, leaving the field highly open to continued subjective interpretation. The end result is the wide array of confusion, misunderstanding and unsubstantiated practice that dominates the field in many circles to this day. It is my sincere hope that I will be able to permanently eradicate many of the obstacles to logically understanding the role and mechanics of breathwork in the following pages so that I may help you

[3] Ley, 1999

each lay the foundation for the integration of simple, proven, affirmative life-changing practice in your daily lives.

TYPES OF BREATH RETRAINING:

There are **two principle** uses for breathing in *Combat Systema*:

- The first is **combative performance enhancement** and function.
- The second is **health and healing** work.

Both reflexive "body intelligence" and active cognition are uniquely suited for different aspects of combat.

I intentionally resisted using the term *relaxation* here to refer to health work, since in the *Combat Systema* perspective relaxation is not exclusively reserved for health and healing. Some degree of relative relaxation also extends to the combative arena as well. Unlike other combative approaches that seek to excite or emotionally escalate the practitioner in order to prepare for violence, the *Combat Systema* perspective is that **relaxation is a necessary component of optimal combative performance**. As we will explore more fully in our *Combat Psychology* module, research has established that both reflexive body intelligence and intentional cognition are necessary components of the total warrior, with each mode being ideally suited to certain tasks. **There is a best time for instinctive reaction and a best time for slow, deliberate strategy** as we will near the end of this guide. What matters somewhat more at this juncture is that we understand the ability to best control this duality and to modulate and adapt our performance is based heavily on training, skills confidence and our ultimate degree of relative relaxation within the combative arena.

Research shows conclusively that breathing behavior can be modified. We are not condemned to be *"bad breathers".* In fact, our growing understanding of not only *how* to control our breathing patterns but also of how these changes affect *emotions* and *cognition*, have earned breath retraining an increasingly central role as a fundamental component of psychological treatment.[4] Breath retraining has been shown to improve[5]:

- Chronic lung diseases (i.e. asthma, bronchitis, emphysema)
- Breathing-related disorders (i.e. panic attacks)
- Stress-induced psychosomatic complaints (e.g. carpal-tunnel syndrome)

[4] Ley (1999)
[5] Ley (1999)

- Anxiety disorders (i.e. test anxiety)

- And occupational health (i.e. chronic fatigue syndrome)

The majority of the existing literature available on breath optimization is concerned with maximizing **relaxation**. Methods for optimizing breath control tend to prioritize one of a handful of modalities, which include:

- **Cognitive theory (*a.k.a. cognitive restructuring):*** This involves educating the subjects on the association between stress and breathing, generally hyperventilation. A clearer understanding of the causal relationship helps subjects to identify the symptoms of stress sooner and thereby helps them to intercept their anxiety and control their breath prior to the full onset of panic.

- **General relaxation training/therapy:** There is tremendous evidence indicating that relaxation creates lasting health benefits and we will discuss them in our treatment of health work later on. *Combat Systema* employs general relaxation therapy actively throughout its training structure, which primarily consists of:

  i. **Deep Breathing**

  ii. **Visualization**

  iii. **Selective Contraction**

  iv. **Progressive Relaxation**

  v. **Mindfulness Training**

  vi. **And assorted other forms of induction**

  While this work is primarily concerned with creating states of total relaxation for the purposes of maximizing healing, as we will see, there are *carry-over* effects of general relaxation training to stress environments. We will also discuss the differences between *relaxation* and *mindfulness* training during both our treatment of health work and *Combat Psychology*.

UFC Champion Georges St.Pierre regaining breath control between rounds.

- **Breath retraining (a.k.a. remedial breathing).** Generally, this training seeks to help the subject control the *rate* and/or *depth* of their breathing. Under conditions of stress, the

reflexive tendency is to increase breathing frequency (hyperventilation). The purpose of this reflex is to increase oxygenation to meet the growing demands of the stressed body, as the pulse and respiration increase. The process itself however tends to effectively add stress to the nervous system as well, as the rapid inhales provide insufficient time to process the air that is being taken in. Training to deepen and slow the breath to fuller, so-called *abdominal breaths* is commonly advocated.

- **Voluntary over-breathing.** This therapy involves a combination of cognitive restructuring so that practitioners understand the causal effect between stress and hyperventilation (what we would term the *education* phase of the process) as well as voluntary *exposure* to self-induced hyperventilation (a form of pressure-testing). Research in this domain has boasted impressive results but some of the methods used for evaluating success as well as some of the information regarding the duration of exposure and treatment is inconsistent.[6] In *Combat Systema,* students often explore crisis breath patterns, including reduced or stretched breath rates, or even complete deprivation during temporary exertion. This work serves two purposes:

    i. It **familiarizes** the student with oxygen deprivation and the emotional and physiological changes which it brings. Through gradual, repeated exposure, the student lessens their initial *orientation shock* and learns to better cope with the stressors.

    ii. It teaches the student how to **recover** from said states with increasing efficiency. Lack of oxygen can trigger powerful fears associated with death and suffocation. Simply learning to distinguish between *fear* and the actual *threat* and experiencing recovery, helps the student adapt and bounce back more quickly with each exposure.

- **Biofeedback therapy:** This provides alternative external measurements to help the student gauge their breath performance. By seeing clear gains and losses during their breathwork, subjects are better able to establish benchmarks and to adapt their efforts to maintain optimal breath states and avoid erosion into panic. While research has shown that biofeedback can help practitioners better gauge their success in the short-term and achieve measurable improvement during initial feedback, absence of the biofeedback has been shown to lead to a deterioration of the advantage by the follow-up stage, making the advantages *short-lived* and suspect, with questionable value for combative uses.[7]

- **Auditory regulation**: This approach allows subjects to train their breathing along with a rhythmic beat whose tempo is just below the frequency of their regular breath-rate. In one study, subjects were exposed to 10-minute intervals of such rhythms, three times a day. Subjects faired significantly better at lowering their breath rate than control groups who were

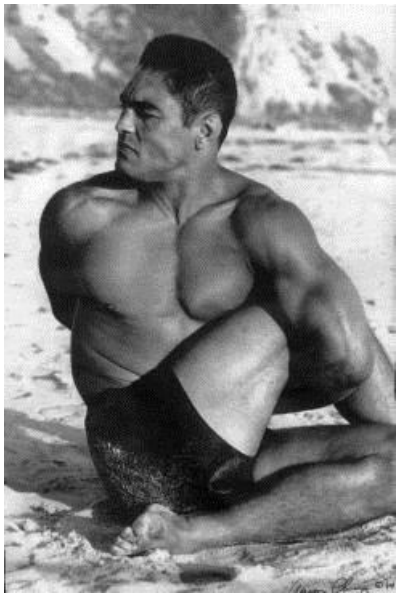
[6] Compernolle, Hoogduin and Joele (1979) (Compernolle, 1979)
[7] Van Doorn, Folgering, and Colla (1982)

asked to simply try to relax and breathe quietly for the same amount of time.[8] Other similar studies were limited by the use of small sample groups and therefore much of the available research on this topic must be interpreted with caution.[9] This is a classic example of *entrainment*—the tendency of molecular activity to match its rhythm when exposed for prolonged periods of time to other activity. As discussed in ***Primal Power 1***, if a wall full of clocks is set at different times, eventually, they will all begin to tick at the same beat. Similarly, women living in the same household will tend to synchronize their menstrual cycles, babies heart rates will entrain the beat of their mothers even after they are outside the womb and simply leaning on their mother's chests, etc. This appears to occur at a molecular level.

- **Pavlovian Conditioning:** This final approach targets changes to breath patterns which are then conditioned by association with certain stimuli. For example, Sherrington was able to create responses within the circulatory system (changes in heart rate and blood pressure) by simply warming up a noisy shock generator prior to the delivery of the actual shock. The subjects came to associate the sound of the generator warming up with the actual pain of the shock and began to experience the physiological changes from being shocked prior to the actual delivery of the shock.[10] This is obviously a more extreme form of conditioning but it points to the fundamental effectiveness of the mechanism of operant conditioning. If a fear response can be trained and conditioned, it should theoretically also be able to be untrained by similar means and methods.

CREATING A BREATH RETRAINING PROGRAM:

There are advantages and value in all of these forms of training. Initially, however, the sheer variety of options can be daunting. **Where should we start?** Returning to the three-pronged stress inoculation training approach employed in Combat Systema, *education* should naturally be our first step. We need to know *where* we are coming from if we are to know *where* we are going. We must understand *what* we are doing and *why* we are doing it. To this end, **cognitive theory/cognitive restructuring** is the logical beginning as well as a constant component of all that we will be doing here. It is essential, that you as an individual teacher or practitioner understand *why* we adopt certain breath techniques and not others. Remember, we cannot consistently perform in a manner that is inconsistent with our own self-image. If we harbor doubts, confusion, or uncertainty in why we are doing something and instead are simply following along, we will never be able to reach our fullest potential. Demand to know why. Test and experiment for yourself and only do what makes sense and creates tangible and positive change for you.



Jiu-Jitsu legend Rickson Gracie performing yoga.

Next, I would suggest the inclusion of ***general relaxation*** techniques

[8] Grossman, de Swart and Defares (1985)
[9] Kraft & Hoogduin (1984) (Kraft, 1984)
[10] (Sherrington, 1900)

in your daily regimen. I will include a variety of options in our treatment of health work. They are there for your consideration. Use whatever works for you, whatever gives you the best results and whatever you find simple enough and interesting enough to be sustainably motivated to explore. Mix it up if you like and try different approaches for different test periods. Just please realize the variety is offered to give you *options,* not to burden you. Whenever I find myself overburdened with anything, I like to think of an old Shinto maxim I read early on in my training:

For something to be sacred, it needs to be simple enough to be performed every day
*and it **must** be performed every day.*

Keep it simple. Choose whatever feels right and just get started. The rest will fall into place. Relaxation is central to our longevity as well as to our ability to recuperate and restore ourselves. Moreover, as noted, general wellness and relaxation have a carry-over effect to stress situations.

Third, I would recommend the inclusion and study of **breath retraining/remedial breathing**. In the following sections we will explore the 11 essential principles that we use to provide our breath retraining with a framework. You will see a wide variety of drills that you can easily incorporate into your training routine. As you progress through this guidebook, you will notice that all of the training sessions are designed to incorporate a period of mindful breath work at the outset, that grows into a warm-up driven by breathing principles and then which seeks to carry over that mindfulness and focus into the fullness of training. Every session then ends with a relaxation and healing period. This simple format is so life-giving and restorative that you will notice a difference in just a few sessions of practice, if not immediately.

Fourth, ***voluntary over-breathing*** (and under-breathing or voluntary breath holding) is an extremely valuable tool. It provides a specialized form of exposure training and pressure testing that can condition subjects to cope with suffocation and the panic and death terror that is tightly connected to this perception. This can be triggered by simple anxiety and anticipation of a threat or can come from something more physical such as being winded by an impact from a strike or from hitting the ground, from being strangled, drowned or smothered, or by working in extreme environments (choking heat, piercing cold, noxious fumes, water, etc.). Over-breathing is not a priority in foundational training however. It should be regarded as a specialized *intermediate* to *advanced* training option for those that are interested.

- **It should not be introduced to practitioners who are new.** Even the toughest appearing individual may not be ready to cope with the psychological ramifications of combative over-breathing exposure. Ensure that every participant is thoroughly familiar and adept at basic abdominal breathing and restorative burst breathing before even attempting *over* or *under* breathing. See that they are breathing naturally and normally in their regular activities first. See that they are not being over-stimulated or excessively excited or exhausted by the foundational training. When introducing voluntary over-breathing or breath holding, make sure that you cognitively justify and educate the students as to *why* they are performing this and always provide a safety net—tell students that if they should ever feel unwell or uncomfortable that they should just stop and restore themselves. Safety first. Check your ego at the door.

- **Breath deprivation or voluntary over-breathing should not be introduced to practitioners who suffer from serious health illnesses or conditions which could be aggravated by the increases in blood pressure which can result.** Any individuals suffering from high blood pressure should proceed cautiously. Students that are suffering from sleep deprivation or depression, those who are under the effects of alcohol or drugs or even overly caffeinated, should all avoid this type of work. Students that are manifesting labored breathing in their regular function and training should also be cautioned against this work. Since ego is always a factor, an effective caveat is to list these categories and then to explain that anyone who feels that they might fall into one of these categories can simply work on slowing their breathing, or reducing the amount of air that they intake. In this way, no one need be embarrassed or publically called out for being in any of these categories.

A U.S. Naval *"drown-proofing"* class.

- **Over and under breathing should also not be introduced to individuals suffering from severe anxiety conditions.** Students who are overly excited, overly emotional, whether depressed, angry, distracted, unfocused or even deliriously happy, should all be brought to a more focused and emotionally balanced state before proceeding to this type of work. Students that are demonstrably flinch, twitchy, tense or rigid should similarly be softened first with long, slow, full breathwork that integrates long, slow, full movement. A mindful execution of the core exercises (which we will describe later on) is a perfect example or how an individual or group, can be brought towards a correct starting state for this type of work. Remember, **students must be ready to do this work and willing to volunteer for it.**

Somewhat more accessible to most students than breath deprivation training is the use of *burst breathing*. Burst breathing consists of taking short sipping inhales through the nose and sharp, quick exhales by the mouth. This is commonly used to restore the body during shortness or loss breath. We will discuss this in greater length in the coming sections.

Biofeedback therapy provides an interesting and illuminating insight into the mechanics of our breathing and may prove particularly valuable to individuals who feel blocked or completely unable to feel what they are experiencing when breathing. The short-term nature of the gains however make it of limited value, while the technical requirements of biofeedback therapy make it less accessible or at least limited for the

average practitioner. The most significant form of biofeedback that we regularly employ is the use of pulse measurement and heart monitors which we will discuss later on.

Auditory regulation is similarly of questionable if not minimally advantageous due to the limited amount and degree of research that has been done regarding it. I have personally experimented with various forms of audio feedback rather significantly, including an integration of background sounds (wind, ocean waves), spoken affirmations (detailing simple training or combative goals) and visualizations that are described in short, rhythmic phrases, all of which I recorded on various audio discs and then replayed during meditation, relaxation or prior to sleeping. I have consistently noticed an increase in the overall feeling of relaxation and wellness after a short-term period of regular use (generally test periods of 14-30 days which were recorded in a meditation journal). Ultimately an interesting exploration, this device may be somewhat gimmicky for some or wholly too contrived or cognitive. For others, it may be an interesting occasional diversion and specialty tool in their continuing exploration of self-awareness, relaxation and breath-training.

Pavlovian conditioning is perhaps the *least* useful for most practitioners. While consistently shown to be effective, it can often be perceived as fundamentally abusive or punishing by the conventional student unless it is carefully administered. In reality, most combative training has an underlying vein of operant conditioning running through it. For example, we learn very quickly that breathing incorrectly makes a punch enter more deeply into our organs and stay there longer. Very quickly, we are motivated to correct this.

Breath control is <u>more</u> effective than simply trying to relax when reducing the intensity of hyperventilation.

As an interesting side note, both *relaxation* and *breath retraining* were tested against a control group to determine their relative effectiveness. Both methods included a cognitive component, wherein subjects were made aware of the relationship between hyperventilation and stress. Again, the education phase is key. Both methods proved to be more effective than no treatment at all. The only distinguishing factor between relaxation and breath training is that breath training was shown to be more effective at reducing the intensity of hyperventilation.[11] This small distinction is hugely important in combative terms, when we consider the role of excitement and stress-induced increases of the pulse rate relative to combat performance later on. This serves as further substantiation that breath control is more relevant than simple relaxation therapy for combative applications.

Respiratory retraining has also been shown to providing **lasting decreases to resting breath rates** compared to subjects who only received exposure training.[12]

[11] Vlaander-van der Giessen and Lindeboom (1982) (Vlaander-van der Giessen, 1982)
[12] Bonn, Readhead and Timmons (1984)

THE EFFECTS OF OVER-BREATHING:

While the *Combat Systema* practitioner does seek an increased degree of relaxation even within the combative domain, the degree and purpose of that relaxation is markedly different from the degree and nature of relaxation that is sought in non-combative exercises. In health applications, the work is primarily focused on the fullest possible degree of attainable relaxation. By comparison, combative research, most notably by experts like Bruce Siddle, has shown that **complete relaxation in a crisis situation would actually <u>not</u> be ideal** and that in fact some degree of controlled arousal actually improves performance. There is a zone of *optimal performance*, wherein a negligible loss of motor control occurs, but where pain tolerance, strength, endurance and the focus to multi-task all increase exponentially as we will discuss later. **The goal of combative breathing should be to maintain and prolong your state of optimal arousal and function and to avoid over-excitement into a phase where skills can begin to erode and the benefits of arousal are offset by the costs.** The first consideration relates directly to this objective.

"Over-breathing" means trying to inhale more air before we've processed what's already in our lungs.

During a crisis, the reflexive tendency of the body is to either:

- **Hold the breath:** The ability to hold the breath is an adaptive response that helped our ancestors better conceal themselves. It also helped us to swim both to *flee* and *hunt* under water.[13] This is assisted by a contraction of the abdominal muscles which compresses the gut, restricting diaphragmatic contractions. The increased oxygen requirements brought on by heightened arousal in turn transfers the demand for increased expansion from the limited gut to the more available intercostal muscles.[14]

  There are <u>2</u> fundamental causes of breath-holding:

  - ***Startle Response:*** The startle response is a reflexive contraction of muscles in response to the sudden, sharp onset of a relatively intense and unsignaled stimulus. Usually this is induced by sound. The startle response includes a spasmodic gasping inhale, followed by a cessation of breathing during the inhale phase *(apneusis)*. Your inhale is cut short midway.

[13] Ley (1999)
[14] Lang, Bradley & Cuthbert (1990)

- ***Orientation Response:*** The orientation response is the reflexive attempt of the body to determine the source and nature of a stimulus. Think of this as the *"what is it?"* response. Unlike the startle response, the orientation reflex is characterized by complete apnea (the individual stops breathing entirely at the outset of the inhale). You effectively forget to breathe.

A shortness of breath (*dyspnea*) can also occur through a loss of voluntary control, like when we get the wind knocked out of us during training. In addition, secondary breath holds can include anticipatory panic attacks that have become conditioned response. Returning to the example of getting winded, the experience of being hit can create a future fear of getting punched again. The mere presence of the potential to be hit can then in turn create an anticipatory breath hold. Both types of breath cessation can give the sufferer a deep sense of the onset of suffocation and therefore of death. This threat to their well-being can provide significant disorientation and terror. [15]

Shock and the lag in which we orient the nature of a surprise, can cause the subject to hold their breath.

- **Hyperventilation:** Hyperventilation is the opposite extreme of breath-holding. It involves taking in a higher degree of ventilation than is necessary to meet the body's demands. This is caused by an increase in either the ***rate*** or the ***depth*** of the breath. Over-breathing is an adaptive response that seeks to prepare the body for fighting or fleeing a threat.[16] Typically, this induces a degree of panic, wherein individuals instinctively try to compensate by inhaling through the mouth (because it is larger) to satisfy the sensation of breath deprivation. The reflex in the Russian perspective is that we are trying to consume new air before we have fully *"digested"* the existing air in our lungs. The fresh air therefore rebounds off of lungs that are still full and bloated, creating a negative cycle of over-breathing. While largely known as *Hyperventilation Syndrome* (HVS) in Western scientific literature, this process is typically referred to as simply ***over-breathing*** through the bulk of this manual. I feel the term is

[15] Aitken, Zeally, and Rosenthal (1970)
[16] Ley (1999)

simpler and ensures greater clarity. There is also research indicating the simple use of the term *"hyperventilation"* may contribute to the expectation of anxiety and therefore actually add tension in its own right.[17]

The so-called Hyperventilation Syndrome (HVS) is believed by many researchers to explain the self-induced or somatic symptoms of anxiety disorder sufferers.[18] This can lead to distinct physiological changes, including:

- **A decrease in alveolar and arterial carbon dioxide pressure** (PCO_2)[19]
- An **increase in pH** in the blood and the cerebrospinal fluid (respiratory alkalosis)

Prolonged hyperventilation can also cause:

- **Constriction of the arteries** in the brain and hands leading to a loss of cognitive function and fine motor skill
- **Breathlessness, tightness in the chest, pounding of the heart, dizziness, tingling, increased sweating, nausea, nervousness and anxiety**[20]
- **Increased neural excitability** (combatively this is important, because many flinch-based systems as we will discuss, pay little attention to breath control and induce continued fight-or-flight responses in the body, in effect inducing prolonged states of neural excitement and hormonal toxicity in the practitioner).
- Increased production of lactic acid leading to quicker fatigue and depletion (i.e. "*exhaustion syndrome*")[21]
- **Lowering of phosphates** levels in arterial blood

TREATING OVERBREATHING:

A variety of treatments have been researched to counter the effects of panic and hyperventilation. They all essentially look at changing the feedback look of hyperventilation. This can be done by either:

1. **Reducing the respiratory rate**, or

[17] Griez et al. (1988)
[18] Bass, Leliot, & Marks, 1989; Cowley & Roy-Byrne, 1987; Garsse van Veenendall, & Bloemink, 1983; Holt & Andrews, 1989; Lum, 1981; Rapee, 1987)
[19] Garssen, 1980
[20] White & Hahn, 1929
[21] Pitts and McLure, 1967

2. **Cognitively reattributing physical symptoms** to hyperventilation instead of other more catastrophic causes.

Breath retraining works. We're just not sure why.

Significant bodies of research show that both breath retraining and cognitive reattribution seem to help reduce over-breathing. Why or *how* these methods are working is unclear however. Moreover inconsistencies in the effects of both methods have increasingly begun to imply that much of the effect is simply a placebo. [22] [23] A lingering difficulty with disproving this is that patients are not usually available for measurement during spontaneous attacks, leaving the bulk of the research to be based on chronic sufferers. Moreover, recent studies have suggested that **over-breathing is probably not responsible for causing panic attacks as most people assume**. It seems rather that over-breathing simply accompanies the symptoms of panic and that it is in fact these symptoms that in turn trigger the panic.[24] Some people over-breathe regularly without suffering from panic. Others seem to be triggered by the appearance of panic. Breath retraining works, it just doesn't work for the reasons we originally thought. This is what is termed a *"rational placebo"* in medical terms.[25]

This understanding is essential to the Combat Systema practitioner for a number of reasons. If breath retraining is a rational placebo:

1. **Over-breathing *is* likely a necessary factor** in producing the somatic symptoms of panic but <u>not</u> a direct cause of panic.

2. This means that **over-breathing is <u>not</u> a physiological trigger for panic** and not universally applicable. It is only a *psycho-physical* trigger that affects *some* individuals.

3. Since over-breathing is only a psycho-physical trigger, sufferers of panic induced by over-breathing can be treated by either physically retraining their breath patterns or by psychologically reframing and restructuring their perception and expectations of the symptoms. While some combination of psychological and physical training is likely best, this implies that **even those individuals who suffer from physical limitations to their breath** (lung damage for example) **should be able to gain some degree of improvement by changing their expectation and perception of the symptoms and in effect improving their coping skills, even if mechanical gains in their actual breathing capacity and patterns are impossible.**

This furthermore implies that even the physical process of breath retraining benefits from a significant

[22] De Ruiter, Rijken, Garssen , and Kraaimaat (1989)
[2323] Hibbert & Chan (1989) (Hibbert, 1989)
[2424] Garssen, de Ruiter and van Dyck (1992) (Garssen B. R., 1992)
[25] Wulff (1976)

psychological component which cannot be separated from it. Breath retraining is likely effectively improving panic and anxiety conditions because:

1. It reduces a wide range of symptoms to a **simple process**. Rather than focusing on all of the symptoms and trying to stop them, we focus simple on breathing deeply or a simple breathing pattern.

2. Tightly connected to the first point, the process of breath retraining provides a **cognitive distraction** from emotional processes and diverts the subject from focusing on anxiety.[26] In our treatment of combat psychology, we will discuss the reality that we are goal-driven (servo-mechanisms) and that we operate according to the goals that we feed ourselves. Research has shown that trying to think of a negative thought and then to dispel it is ineffective. Therefore trying to think of our symptoms of panic in order to get rid of them will not work. If someone points a gun to your head and you say to yourself: *"Come on legs, stops shaking. Don't look scared. Just stop shaking"* you are likely to actually increase your anxiety and symptoms. Instead, as we will see later on, research shows that we should focus only on simple, positive, affirmations. *"I am strong like steel. My eyes are like lasers. I am breathing fire."*

3. Contingent on this, **breath-retraining increases the sense of self-reliance and personal mastery**. If we focus on the symptoms of stress, we can easily get over-whelmed by the growing momentum of our involuntary body functions. If we focus on a simple breath pattern however, we *take responsibility* for our state and snatch control of the situation back from the jaws of panic. As we will learn in our discussion of *Combat Psychology*, getting lost in panic is just like getting lost in the wilderness. The first step to survival in both situations is to abandon hope or expectation of rescue and to take responsibility for your own survival. [27]

4. Breath retraining **induces relaxation** and relaxation effectively reduces anxiety. Again, we will provide a more detailed discussion of pure relaxation therapy shortly and provide modern research that shows that relaxation can positively change us down to a genetic level!

A NOTE ON PLACEBOS:

Before continuing, I would just like to digress for a minute to discuss the topics of *placebos*. In the preceding section, I introduced significant evidence supporting the likelihood that **breath retraining functions as a rationale placebo**, meaning that it *measurably* and *demonstrably* works, just not for the reason one might first logically assume. People often get insulted when I introduce this evidence. The most prone to this are individuals who have a lot invested in breathwork, like yogis, martial artists, and therapists. They tend to get angry because they have firsthand experience with the power of breath retraining. They *know* it works because they've seen it work on others and felt it work on themselves. They know it's *"real"* and when they hear that I

[26] Garssen, de Ruiter, & van Dyck (1992)
[27] Bandura, 1977 & Frank 1973 (Frank, 1973)

am providing proof that it's working for reasons different from what they've been taught, they respond: *"There's no way it's just a placebo effect".*

And that's the real crux of the difficulty—the word ***"just"***. We have this notion that medical treatments work for a *reason* that's based on science and measurement and that can be proven. Placebos seem to be something quite opposite and contrary to this, something less valid. People feel that placebos are fake, dishonest, flakey, fictional, and mystical or crazily all in our head. We test medications against placebos by lying to test subjects and telling them that this inert sugar pill will take away their pain. Placebos are deceptive. They are empty promises. There certainly seems to be nothing good about placebos.

Expectation is a proven mechanism with the power to both heal and harm the physical body.

As Dr. Herbert Benson points out, the name *placebo* is the start of the problem. It's something of a misnomer and a large part of the reason this term is viewed so negatively. Benson notes that this poor choice of label is even more importantly, partly responsible for many of the misconceptions that exist in modern medicine. **The placebo effect is a mind body mechanism that can cause the body to heal itself based simply on the power of expectation.** Latin for *"I shall please"*, it made its first appearance in the Vulgate Bible translation of a psalm used in the medieval church's Office of the Dead Ceremony: *"placebo Domino in regione vivorum"* (I will please the Lord in the land of the living). Later, a tradition developed of hiring professional mourners to bolster the attendance of funerals. These hired mourners would wail and lament your passing even though they had never met you. They became known as *"placebos"*. People quickly frowned on this practice and the term became synonymous with a useless and shameful activity.

The negativity of this perception has stuck even in its modern medical incarnation. Placebos are thought of as dummy medications, sugar pills, and empty cures. They are tests to trick the patient to see if real medication is going to work. (Double-blind control research). The difficulty with this model as Benson notes is that up until now, it has been used to prove if the competing medication works or not, without any consideration of the possibility of the body's innate power to heal itself. In fact, double-blind control is largely based on the assumption that **any possibility of impact by the mind on the body must be rejected** as proof that the medication doesn't work.[28] Given this mindset, researchers have naturally dismissed the very real and obvious benefits that positive, affirmative thinking, hope and mind-body healing may have been occurring. To date, there have been literally *thousands* of instances of clinical trials for *"failed"* medications that prove the existence of the placebo effect. In many cases, the placebo effect even **exceeded** the power of the drug or technique which it was being tested against it.

I consider myself a fairly pragmatic cynic, so I get a little twitchy when I discuss this topic, because I freshly remember the instinctive disbelief I had when I first encountered this notion. Belief often held a connotation for me of being some form of blind faith and therefore was quite outside the domain of measurement and provability, but belief is another word that has been tainted with misconception. Belief can certainly overlap with faith, but it need not. **Belief can be based on proven scientific research.** It can be

[28] Benson, p47

measurable, testable and most importantly falsifiable, like a belief in gravity. In fact, belief, as an aspect of our psyche, as an element of the natural technology of our minds, is a hugely important component of mental and physical health. Pioneers, such as William James, often touted as the father of modern psychology, was a strong proponent of the notion that the mind could influence the body. Walter Cannon, the discoverer of the *"fight-or-flight"* response took this research even further, particularly for those of us with an interest in combatives. Cannon showed the very real and tangible effects of stress of human health. Canadian Hans Seyles built on this evidence and clearly established the negative attributes of stress—a fact that most of us today clearly accept and understand. Herbert Benson, who coined the term *"relaxation response"* to describe the natural counter-balance state to Cannon's fight or flight response, took the research into a domain of unsurpassed legitimacy.

There is nothing mystical about the placebo effect. fMRI technology has allowed us to peer inside the mind and to identify a decrease in brain activity in the pain-sensitive regions of the brain (the thalamus, insula, and anterior cingulate cortex) during its activation. We can see where, why and how the placebo effect works. The placebo effect operates in the body through the release of natural opioid mechanisms, which alleviate pain.[29] Increased activity in the prefrontal cortex (another example of conscious thought overriding emotion) also supports the notion that anticipation of pain plays an enormous role in experiencing it. [30]

Consider just a handful of the evidence presented by the legitimate medical community:

- In 2003, *The Mayo Clinic* issued a press release that noted that some patients **responded better to regular medical attention alone than to actual drug use**.[31]

- The Placebo Affect has been shown to be a **successful treatment** for the majority of *depression sufferers*.[32]

- Studies have shown that simply *reading* uplifting or emotionally sustaining literature (bibliotherapy) has measurable **positive healing effects**.[33]

- Similarly, early research into *journaling* has been shown to **bolster health attributes** in cancer patients.[34]

[29] Benedetti F. M., Nov. 9, 2005
[30] Thompson, Grant, W., p42
[31] Mayo Clinic, 2003
[32] (Diedrich, Aug. 26, 2008)

[33] Benson, p83

This is not to imply that traditional medical treatment is ineffective. Rather, the placebo effect is another **equal component** of that framework, which, is likely most effective when used in combination with existing treatments.[35]

Conversely, research has proven the existence of a polar opposite effect, the *nocebo effect* (literally, *"I will harm")*. Simply put, a patient who expects a medication to fail or a negative symptom to manifest, will often exhibit the negative change for no external reason.[36] Doctors have also become increasingly aware from experience and research that individuals can in effect *will* themselves to die. Studies of people who have undergone surgery but who longed to re-contact a deceased loved one have shown that close to *100 percent* of them die on the table.[37]

The medical establishment is also increasingly understanding and accepting that the mere *size* and color of a pill carries an **expectation**—red and orange stimulate. Blue and green depress. These expectations alone are often strong enough to contradict the medication's expected effect. [38] The furthest extent of this arguably could include the influence of expectation inherent in *voodoo* rituals. While controversial, consider this: section *228* of the *Canadian Criminal Code* in its discussion of culpable homicide says that an individual is not responsible for deaths supposedly caused by the influence of mind alone but that it *does* apply where a person causes the death of a child or sick person by willfully frightening them.

In the end, the mind is a powerful compass that determines the direction of the body. It has the power to exert tremendous influence over the physical components of the body and to in turn actualize those anticipations and intentions. As Benson notes, even the basic hereditary structure of genes and our own DNA are massively complex and their expression is constantly being modified within our bodies every living second by these forces. Expectation can literally *will* permanent transformation to occur in the very foundation of our biology. Ultimately **accepting that breath retraining operates based on the placebo effect does not lessen its worth or effectiveness**. Nor does it imply mysticism or faith. Quite contrarily, it explains the power of this process using the latest cutting edge science and suggests a scope of applicability far beyond what many may have originally accepted. More importantly, **by deeply understanding this working model, we quickly see that the specific techniques and rituals, ideologies and approaches of many of the breathwork schools are overly contrived and needlessly complex**. The truth is there are likely numerous components that work in different approaches, many of which may seem completely contradictory to one another. Often, the simple focus and distraction of an approach is sufficient to induce healing change. Remember, it need only be simple enough to be done every day and it must be done every day. What is important is not some secret technique or complex mechanism. Quite contrarily the real secret is simplicity and experimentation to find what works for you. **Understanding the placebo effect inherent in breathwork liberates the practitioner from so much of the**

[34] Alexopoulos, 2007
[35] Benedetti et al., 2003
[36] Reid, 2002
[37] Benson, quoted in Reid's "Nocebo"
[38] Reid, B., 2002

hubris and needless mysticism of traditional approaches and opens them to an endless world of self-directed practice.

"By any scientific criterion, the findings in support of the healing power of the relaxation response…in support of belief, expectation, and the placebo effect demands recognition and acceptance equal to that accorded to research that focuses on drugs and surgery."
Dr. Herbert Benson

BREATHING SUMMARY:

We've already seen a lot of material and it's easy to get over-whelmed by it all, so let's take a minute to recap and to squeeze this lump of coal down into a much clearer diamond. We've seen that:

- ✓ **Breathwork is the absolute foundation of every aspect of Combat Systema.**
- ✓ **Breathing is the bridge** between the *autonomic* (involuntarily) and *somatic* (conscious) functions of the body.
- ✓ Ineffective breathing is proven to cause a wide array of **health** problems.
- ✓ **Breathing behavior can be modified**. We are not condemned to being a "bad breather".
- ✓ All breathwork is **not** the same. There is a lot of information out there that is based on mysticism rather than science or else is the product of generations of secrecy or mistranslation.
- ✓ There are **two principle** uses for breathing in *Combat Systema*: **combative performance enhancement** and **health and healing** work.
- ✓ Total relaxation is best for health work but relative relaxation with some degree of **optimal arousal is best for combat**.
- ✓ Both reflexive **body intelligence** and **cognition** have their place in combat.
- ✓ Over-breathing (*a.k.a. hyperventilation*) means trying to inhale before you've processed what's already in your lungs.
- ✓ Breathing problems can be treated by:
    - **Cognitive Restructuring:** We need to know *why* we are doing what we are doing to have full skills confidence
    - **Relaxation Therapy:** This is essential to total health and has a cross over effect to combat
    - **Breath-Retraining**: This is likely a rational placebo but proven to work.
    - **Voluntary Over-Breathing or Under-Breathing:** This familiarizes students with the stress experience and teaches them how to better cope and recover. *This is an intermediate and advanced training modality that should be used cautiously and not necessarily with all students.

- **Biofeedback Training:** we will heavily explore the role of pulse in gauging breath therapy shortly.

- **Auditory Regulation:** uses a rhythmic tone slower than your average breath rate to trigger *entrainment* and cause it to slow.

- **Pavlovian Conditioning:** occurs naturally at some level in all martial training (the cause and effect of ineffective responses resulting in pain or difficult situations) encourages students to breathe effectively.

✓ During a crisis, the tendency to **hold the breath** is an evolutionary response intended to help our ancestors conceal themselves and to swim in order to flee or hunt.

✓ We can hold our breath due to a **startle response**, or an **orientation response**.

✓ We can also hold our breath when we have the **wind** knocked out of us or when we are anxiously **anticipating** something.

✓ Breath training works because it allows the subject to take **responsibility** for their own survival and to take control through a simple process that offers a positive, affirmative combative goal.

✓ **Over-breathing does not cause panic directly**. It creates symptoms that may trigger panic in some individuals.

✓ **Over-breathing is psycho-physical** and not purely physiological. That means it can be treated both by changing breath patterns physically and reframing expectations and perceptions of symptoms.

✓ **Take it one step at a time and just get started.** Find something that is simple enough for you to do every day and then do it every day. To this end, we will now give you some specific guidelines and training ideas. Start with what makes sense to you.

11 ESSENTIAL BREATH PRINCIPLES:

Now that we've laid the foundation for clarity, it's time to get down to the nuts and bolts of effective breath retraining. Combat Systema employs **11 basic breath principles** to provide a basic framework for this work. Again, as with any new concepts, initially, we are prone to getting overwhelmed by the sheer amount of detail. It is important to realize that you will never be able to actively think about all 11 of these principles—nor would you ever want to for that matter. Rather, we may focus or isolate each one of these concepts in due course, as a way of experiencing change and reprogramming new reflexes and habits and developing new sensitivities and awareness. Remember, extensive scientific research has clearly established that **breathing can be changed**. Be patient with yourself and enjoy the journey. Remember that these principles are a training method. **Don't mistake the drill for the fight.** By mindfully drilling one or two concepts at a time, habits are changed and these changes are manifested in combat application and pressure testing.

PRINCIPLE 1 – BREATH RESTRICTION:

The first safeguard against over-breathing and the effects of stress on respiration is to reinforce the habit of inhaling through the *nose* during situations of stress. This achieves a few key functions:

1. **It filters the air** (this is the purpose of the hair and mucous membranes of our nostrils);
2. **It regulates the temperature** (an evolutionary factor in the relationship of variances in nose shapes amongst diverse climates);
3. Most importantly, **it restricts air intake** to counter the reflex of over-breathing.

As we saw, the existing reflex of inhaling deeply during a crisis serves to bolster the oxygen requirements of the increased pulse and diverted blood flow to major muscle groups for *fight or flight.* The difficulty is that in our modern environments and contexts, **cognition is often a far more relevant combative weapon than simple reflex**. Cognition allows us to use strategies and weapons that our ancestors could never have dreamed of. It is precisely through the cognitive powers of our evolved brains that we must learn to consciously re-engineer and control this ancient hardwiring.

Inhaling through the nose allows us to better control our air intake.

While inhaling through the nose minimizes our air intake and helps counter over-breathing, exhaling should occur via the mouth to help *maximize* expulsion during combat or other conditions of stress. This lets an individual release processed air more fully and more quickly, which in turn helps keep the body calmer and more efficient. This is yet another distinction between breathwork that is being done purely for health and relaxation rather

than combat. During health work, it is often prescribed to inhale and exhale exclusively through the nose. Since breath rates are generally much slower, this is appropriate since there is little to no anxiety affecting the breath and no need for rapid expulsion to purge or cope with sudden force or exertion. Inhaling through the nose voluntarily in either case slows breath rates. This has been found to reduce physiological arousal (measured as decreased electrodermal response and increased finger-pulse volume) as well as to diminish psychological arousal (gauged by reduced scores on self-reports of anxiety).[39]

PRINCIPLE 2—SUFFICIENCY:

The act of breathing alone can either add stress or else take it away.

Closely related to the first principle is the notion of only inhaling or exhaling the necessary amount in any given action. This concept is heavily emphasized in *Ryabko Systema* and is in my opinion one of their most potent training insights. **Many people run out of air before they complete an action.** Sometimes, this cannot be avoided simply because the length of the action is greater than the comfortable capacity of your breath phase. Usually however, this happens quite beyond our control. As we have seen, when we meet a sudden stimuli we have 2 basic forms of surprise:

- When the stimulus is completely overwhelming, we exhibit the **startle response**, which normally triggers a *gasp* of air that stops halfway through the inhale. This reflex is most commonly triggered by sounds since sounds are processed more quickly than visual stimuli and provide less information by which the subject can orient themselves.

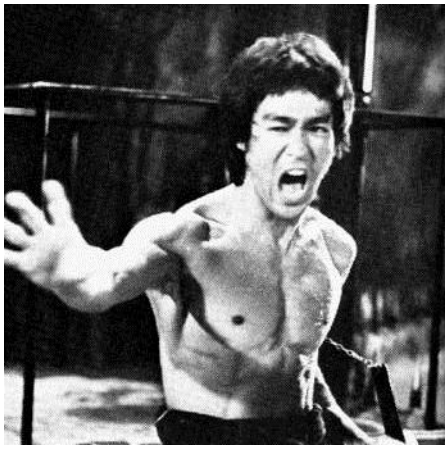
- When we are surprised but are sufficiently *"in the moment"* to try to make sense of the stimuli (generally because it is slightly slower or less intense), we tend to experience the **orientation response**. We try to determine *what* the stimulus is. The orientation response is more commonly triggered by visual triggers.

Breath insufficiency can also be the product of **bad habits.** People can simply exhale *too much* air, *too quickly*, in effect collapsing like a falling tent, or else inhale too greedily (a natural reflex to feed the growing demand for oxygen). Since they have not yet fully expulsed the air already present in their lungs, the fresh air simply bounces off. The end result is that their excessive hunger for air adds tremendous tension to the torso, particularly around the ribs and shoulders and serves to spike their heart rate and oxygen

Takeru Kobayashi, 6-time world hot dog eating champion, grotesquely illustrates that slow and steady wins the race.

[39] McCaul, Solomon, & Holmes (1979)

demands up even further. **The tension that comes from rushing to breathe results in you being able to inhale less.** I always think of the world hot dog eating competitions when I discuss this principle. You have these giant over-weight trucker types who are just scarfing down plates of hotdogs. They look impressively enormous and the initial assumption is that one of the big guys is going to win, but then you have the reigning champion for some years just standing in the middle of this sea of largely white middle-aged bellydom, who is this muscular Japanese adolescent. He is slowly but methodically (dare I say Systematically) plugging wieners then buns into his mouth, like some industrial meat vacuum. It seems to defy physics that he is jamming 50-60 whole hotdogs in his thin belly, but through focused, mindful pacing, he literally tricks his body into inviting 8 pounds of processed meat and bun into his gut. In breathing and hotdog eating, **greedy consumption generally leads to less consumption. Mindful slowness invites greater capacity.**



Since the key to over-breathing is the tendency to inhale too much and to exhale too little, most combative arts that regard breathing, have some type of emphasis on intensifying the exhale during combative bursts. The Japanese *kiai*, or spirit yell is a famous example of this, as are the cat cries of Bruce Lee. Even without training, people will often shout or make guttural sounds during extremely intense exertions, particularly when they are stressful.

EX: The legendary Russian respirologist Vladimir Buteyko spent a lifetime studying the breathing patterns of humans. He determined that the average healthy human being can hold their breath easily for 45 seconds. Introduce this research to your students. Next, on the count of 3, have them all hold their breath so that you can time them and gauge their **"breath health"**. Time them with a stop watch and announce the time at the 15 and 30 second mark, then count down at 35 from 10-1. The mere pressure of measurement will often make a good number of your students feel anxious and fail well before the 45 second marker. Even those that succeed will often need some time to recover after this simple exercise and be completely out of breath. Now, immediately prepare them to repeat the exercise. This time, guide them through 2-3 deep breaths before beginning the exercise to remove the effects of the previous phase. Then, tell them to take the **smallest possible sip** of air in through the nose and to hold their breath. As they hold, rather than counting down (which only serves to emphasize the negative by reminding them of how much longer they are not allowed to breathe) have them focus on simply relaxing and loosening their body. Now, rather than consuming energy and adding tension with needless anxiety, they will minimize expenditures and distract conscious thought. Generally, they will be far more successful the second time around. The simple reason is that they have obeyed the principle of *Sufficiency* both physically and mentally.

When you initially told them to hold their breath, most of them instinctively took a huge breath in first. This is a natural reflex—to stockpile the oxygen in preparation. The problem is the body doesn't work well with so much air inside of it. When we inhale too deeply, we overstretch the lungs and ribs and add more stress to the body. We never needed that much air for the exercise, we just

instinctively felt like we did, much like we crave fatty and salty foods instinctively even though they are not good for our longevity.

Another way to look at breath sufficiency is to imagine two identical cars. Both cars will drive at identical speeds and will have access to the same quantity of gas. The challenge is to see which car can drive further and longer given identical conditions. The only difference is that the first car will carry all of the fuel that it will have access to throughout the entire challenge. It will fill the trunk and back seat with fuel containers, pile fuel cans in the passenger seat and even need to tie them onto the roof of the vehicle. The second car will have access to the same quantity of fuel cans but instead of needing to carry them all, it will only need to fill its tank. All of the other cans will be strategically placed along its route so that it is able to stop when it needs them and fill up (like personal gas stations). Naturally, the first car, forced to carry the burden of all of the fuel, will consume more gasoline and perform less efficiently. It will run through its supply far more quickly. The second car will perform far better and presumably will drive further. When we over-breathe, we are just like the first car trying to put as much fuel into us as possible. When we breathe efficiently, we are like the second car, taking in only what we need to function.

Breathing efficiently is like fuelling our car only when we need it, whereas over-breathing is like trying to overload our car with extra fuel--the extra weight only ends up worsening our fuel efficiency.

PRINCIPLE 3- PENDULUM RHYTHM:

Building directly on the concept of *Sufficiency* is the Systema perspective of the controlled pause. Most people regard breathing as consisting of two phases (the inhale and exhale). The Combat Systema perspective holds that there are actually **4 sections** which are each worthy of equal attention and training. These are:

- **Inhaling**
- **Fullness**
- **Exhaling**

Healthy breathing should have a brief pause at either extreme, just like the movement of a pendulum.

- **Emptiness**

It has been demonstrated that during periods of rest, healthy individuals experience a slight and comfortable *pause* between the inhale and the exhale, and the exhale and the inhale—what we term the *natural pause*. Like the movement of a pendulum which pauses briefly at each extreme of its swing before returning, the breath cycle can be seen as requiring these 2 natural pauses. This can be observed while you are resting or witnessed in others who are in a comfortable and stress-free state. Cycling the breath faster and rushing through these natural pauses (or eliminating them completely) creates more stress in the body and cannot be maintained for great periods of time without harming your health. Mindful cultivation of these pauses, what we term *controlled pauses* (intentionally isolated and exaggerated natural pauses) therefore helps support sufficient, relaxed breathing. These pauses permit a fuller processing of the breath and help avoid the risk of over-breathing, along with the tension and increased pulse rate, loss of cognitive control and loss of motor function, which so often accompany over-excitation.

The most basic method of identifying and growing your awareness of the 4 phases is through what we term *"square"* breathing. Square breathing involves allotting equal importance and length to each of the four phases. For example, inhaling for 3 seconds, holding the lungs full for three seconds, exhaling for three seconds and then holding the lungs empty for three seconds. Square breathing can certainly be used during **relaxation** and **mindfulness** work and during specialized fitness exercises (all of which we will discuss shortly). Within these direct dynamics it will lead to a more efficient utilization of the individual's breath. This experience will deepen the practitioner's **awareness and understanding** of the 4 phases. In the case of fitness applications, it will also quickly increase their familiarity with breathing under conditions of physical stress and their **coping skills** for recovering from less ideal breath states. This will strengthen their confidence in the skill (which is essential to its effective implementation under actual combative conditions). By integrating awareness of the 4-phases in relaxation and fitness work and gradually including it in combative drills and simulations, the student will become accustomed to employing this highly effective tool within actual crisis situations.

Within military and law enforcement circles, this 4-cycle breath is often referred to as *tactical breathing*.The use of exaggerated pauses allows the practitioner to reduce the total number of breaths taken (thereby decreasing their breath **rate**) and in turn increases the **depth** of the breaths taken. Remember that *rate* and *depth* are the two keys to avoiding over-breathing. A good part of the success of the square breathing or tactical breathing method is the *simplicity* provided by visualizing the square. Adding the notion of the 4 sides to the breath cycle provides an immediate **measurement** that alerts a practitioner to their breath status and it gives them a simple and immediate objective for improving that state (what we term a ***"combat goal"—***please see the module on

Combat Psychology). Remember, as a *placebo mechanism*, breath retraining is allowing us to decrease activity in pain-sensitive areas of our brain, assisting in the release of natural opioid mechanisms, and increasing activity in our prefrontal cortex, effectively distracting us from emotion and pain.[40] [41] Effective breathing helps us stay relaxed and enables us to access the ideal balance between mindful cognition and efficient movement free of fear. Numerous studies have clearly shown that voluntary changes in breathing patterns can positively affect an individual's capacity to cope with pain and their ability to manage deep fear and anxiety as we have already seen in depth.[42]

You will always have doubters who think that breathing is new age hocus pocus. Certainly, the martial arts, meditation and spiritual practices like yoga, have not helped by often shrouding the simplicity of these core exercises in great mysticism, but in fairness, they did not have the vocabulary or research that we have today to explain why this was working. That being said, we *do* have the research and we *do* have the vocabulary now as you have already seen in this handbook, so make it your responsibility to share and explain this understanding to help stem the tide of this continued mysticism. My largest grievance with many approaches to breath work is that these simple life-changing mechanisms are layered with needless mysticism, religious implications and cultural arrogance. **Effective breathing is not unique to one culture.**

Effective breathing is not magical.

We find this problem in numerous breathwork camps. Consider the famous Buteyko school. The Buteyko method is similarly based on the notion that over-breathing is problematic. The distinction is that they go further to say that abdominal breathing is dangerous for health and that individuals should rigorously train themselves to function on less breath, to the extent that training may make them feel like they are oxygen deprived for months before the body acclimatizes. This is a bold claim. For 50 years Buteyko and his proponents have been boasting the thoroughness of their research substantiating for one that they are able to largely cure asthma and miraculously treat a host of other illnesses. They may well have stumbled onto the breath technology of the 21st century. What sets off warning bells for me however are the following facts:

- They claim that the **current lack of understanding** and reliable instruction in the method is due largely to two facts: first, its Soviet origins resulted in it only recently being exposed beyond Russia's borders and second the prevalence of unqualified instructors currently teaching incorrect versions of the practice. This may be perfectly true. The same claim applies in many ways to Systema training itself given its relative newness. It simply means that we should enter into our study a little more cautiously.

[40] Benedetti F. M., Nov. 9, 2005
[41] Thompson, Grant, W., p42
[42] Siddle, B., p.105

- As of now, there are no comprehensive external tests proving the research. Many argue that much of Buteyko's own research is highly subjective and fallible. Some insist it is downright bunk. Truthfully, there is no significant external evidence that matches or substantiates the enormity of their claims.

- They also make claims which on the surface smack of intense subjectivity rather than objective science. For example, one of Buteyko's 10 essential factors to healthy breathing is **morality**. Now, naturally, life style can be a huge factor on our health. If I am highly materialist and driven obsessively by wealth I may well be inclined to be a workaholic and thereby may have a larger likelihood that I will be stressed, perhaps sleep-deprived, perhaps excessive and glutinous in my diet, etc. A potential, perhaps even a probable causality can be established there, but not an *infallible* one. I cannot say that because most millionaires are driven and stressed, that all of them will be. I therefore can't assert that all millionaires will breathe badly and die young of heart attacks. We know this simply isn't true. There are millionaires who are perfectly balanced and healthy.

  The even greater difficulty is that wealth could arguably be defined. You could for example measure individuals who earn over a certain amount or who own a specific amount of assets. But how do you define morality? Do you simply measure individuals who don't have a criminal record? Do you factor in speeding tickets? Do you put everyone on lie detectors and ask them questions? Even then, what questions do you ask? Someone who has had an abortion is immoral in some eyes and not in others? What about a former or current drug user? What about religious choice. Presumably Buteyko himself would have an obvious Russian Orthodox slant to his perspective. Do my views on gay marriage determine my ability to breathe? The Russian Orthodox Catholic interpretation will certainly deviate from other religious interpretations. You see very quickly that we are on a slippery slope. Do we then say that Muslims are incapable of effective breathing? What about those poor atheists? They are already condemned to hell in the eyes of most of the religious—are they also condemned to shorter life spans and poor health? If Buteyko is correct, will an impeccably fit, vegan, atheist yoga master naturally have less correct breathing than an obese, glutinous devotee of the R.O.C.? Presumably in Buteyko's view the answer would be "yes" if that R.O.C. devotee was following his breath method, since he is adamantly against the *"breath indulgence"* of yoga.

  And what about the clinical research of sociopaths who can lie while staring you squarely in the eyes without so much as a blip on their heart monitor whereas normal moral individuals spike and tremble? Research has consistently shown that individuals with delinquent, anti-social and sociopathic tendencies tend to has lower resting heart rates. [43] Presumably, their breathing would also correlate. If you simply don't feel guilt does that exempt you from the morality equation or disprove it all together? What of the serial murderer who

[43] Raine, 1997

calmly bludgeons a child while maintaining a casual heart beat? Does their breath control denote morality? Obviously, these individuals are immoral by most broad standards, yet here they are breathing effectively and efficiently. The fact is, the mere inclusion of morality as a hard scientific criteria for effective breathing seems to paint Buteyko's research with a brush of unreliability and call into question his basic judgment.

Be clear and simple when teaching this and all material. Be factual. Quote evidence. More importantly be humble enough to approach everything with an open mind and be open to learning where we are wrong. Even the most skeptical student needs only to be brought to a point where they are willing to try the technique to begin feeling the benefits.

While combative breathing is effectively an ancient field of study, given its central role in martial traditions throughout the world, scientific measurement and testing of it is a uniquely modern pursuit. Currently, there is still significant debate as to how long each breath should be held and how many cycles should be completed. Even within various Systema camps I have seen students writing down meticulous notes of every exercise, its duration and the order in which they were taught by various teachers as if the ultimate secret to combative and health supremacy lay in the details. Again, this is the danger of failing to explain *why* something is done or *how* exactly it works. This is when it's important to get back to the basics:

- Breathwork is **not** working because of some *mystical energy* or divine intervention. No one has exclusive rights to its effectiveness or ownership of the instruction booklet.

- Breathwork is **not** working because of some specific *mechanical formula*. Many methods, perhaps with the greatest of intentions, have tried to reduce breathwork down to measuring lung health through lung capacity, breath rate, depth, lung resistance and the chemical composition of the inhale and exhale, pulse rate etc. They have evaluated lung health relative to the subject's physical size and condition and prescribed careful formulas of breath patterns for retraining. While there may be some truth to this type of work, ultimately, it is overly-specialized and not the main reason why breath retraining is working.

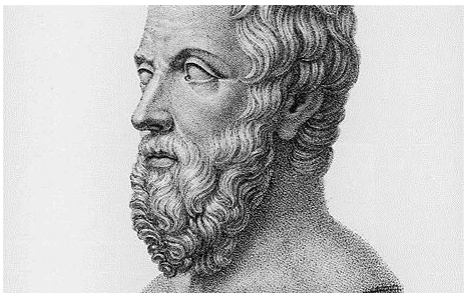
- Breath retraining is working in large part because it is triggering the **relaxation response**. This has nothing to do with formulas or counting. In fact, the simplest way to relax is simply to get comfortable, breathe deeply and possibly to pick a focus word or image that is conducive to relaxation. When distractions come into your head, as Herbert Benson prescribes, simply think *"oh well"* and let them slip away.

- Combatively, simple counting patterns are working because they are providing **simple distractions** that are engaging the prefrontal cortex. For pure health and relaxation applications, square breathing is not as effective. In fact, in our own internal experimentation, we have found that the expectation of limiting breaths to a specific length can actually *increase* anxiety and be entirely counter-productive for many. Combatively, patterns like square breathing appear to be effective simply because they provide a goal—but any simple goal would likely be as effective. There is nothing magical about the specific length, or the number 3. It should just be simple enough to be done easily and it *must* be done easily.

Don't let yourself get lost in needless complexity. Remember why breath retraining works.

The most commonly used cadence I have encountered in most defensive tactics environments is 3-3-3-3 (3 second inhale through the nose, 3 second hold, 3 second exhale through the mouth and 3 seconds held comfortably empty). This is by no means the exclusive domain of Systema. I have encountered it from S.W.A.T. officers across the country, overseas in personal protection work, in the writing of Siddle, Grossman, and even in the conditioning approach of martial artist Mark Hatmaker. In my own applications, teaching and research, I have discerned a few essential guidelines and observations specifically regarding this approach:

- **Everyone is different—**different from everyone else, different from their own self at different times of the day and in different conditions. Herodotus said you can never step into the same river twice, because both the man and the river are always changing. Experiment with the idea of square breathing but remember that the square is a loose frame, not a cage to be bound in. Approximate those counts. Never let the square add anxiety to you. Trust your feeling and intuition here. **You are the world's best expert on <u>you</u>.**



Herodotus

- **Tactical breathing is effective, like any other tool, if it is used properly.** Tactical breathing is largely a *pre* and *post* combative tool. It is used before a stress peak such as:
  - By *a S.W.A.T.* officer preparing to storm a hostile house with their team
  - By a *soldier* before jumping into a war zone
  - By a *prison guard* before entering a cell filled with a violent inmate
  - By someone who has noticed they are being followed. They are preparing to take pre-emptive actions and seeking to avoid violence but feel their stress levels skyrocketing

- By a student preparing to take an exam in school

- By anyone who trains in the combative arts who wishes to experience the breath effects of combat stress and learn to prepare themselves to recover from it

Square breathing can also be used ***post-combatively*** to help cognition regain an authoritative control over your emotions such as:

- To help *debrief* yourself after a violent encounter and more clearly remember what occurred

- To help regain emotional control after a crisis and *reframe* the experience. As we will see in our treatment of *Post-Traumatic Stress* later on, the key cause of PTSD is the sense of being over-whelmed by a stressful event. Breath control can help prevent this from occurring.

While *"square breathing"* is particularly beneficial, remember again that it need not be some overly precise and specific secret formula that is rigidly followed. For example, I have dedicated significant time to researching and implementing alternative breath patterns such as ***"rectangular"*** and ***"triangular"*** breathing as well. Again, once we understand and accept that breath retraining is operating by virtue of a placebo mechanism then we open the door to more intuitive and sensitive self-exploration to find what works best for us. The key to all of these breath patterns is to find a length and rhythm that suits you. The added phases of breath holds must always be performed comfortably and naturally. For some, these breath holds will be far more difficult than others. In my experience this can be due to:

- **Respiratory Capacity** (asthmatics, allergy sufferers, smokers, etc.)

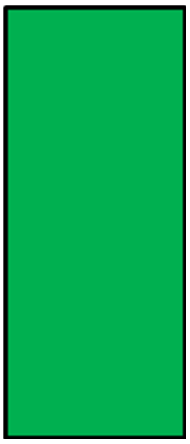
- **Anxiety** (the mere idea of having to hold your breath, particularly for a set period of time can cause more stress than it removes).

- **Conditioning/Fitness** (the all-Doritos-and-couch diet can catch up with you).

- **Confidence and Belief in the Technique** (it's difficult to convince someone to hold their breath if they believe it's better to breathe). People with impulse control issues or attention deficit disorder can be particularly challenging here.

One simple fix for many of these issues is to transition to a **rectangular** breath hold. For example, rather than trying to keep all 4 phases of the breath equal (i.e. 3-3-3-3), shorten the length of the controlled pauses (4 second inhale, 2 second full hold, 4 second exhale, 2 second empty hold). This still achieves the desired results and for the right people, is far more effective. In our training in Montreal we have been experimenting with stress levels to test the limits of different breathwork. We have seen that when pulse rates spike due to stress

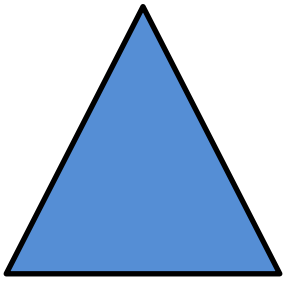
(not cardio), it is very difficult to perform the 3-3-3-3 and even for those that are physically fit enough to manage and mentally committed enough to force the breath pattern, the actual benefits to the pulse rate are often inconsistent. Many get only a negligible decrease and some actually increase before needing to abandon the breath pattern—it is obviously not working for them. By shortening expectations from a square to a rectangle, the effects are generally better, easier and quicker to attain and they are also attainable by a wider sample.



For situations where either breath hold is adding more stress than it resolves, *"rectangular"* breathing can be preferable (ex. inhale for 4 seconds, hold full for 2, exhale for 4 and empty for 2).

For extremely stressful situation, for example during the midst of intense struggle, compressing the breath pattern further from a rectangle to a **triangle** has been most effective. This concept was motivated by the fact that I noticed many people were have difficulty holding the lungs **empty** during dynamics of heightened stress. Since the entire logic behind holding the breath is to slow down the breath cycle and to specifically avoid over-breathing, I experimented with eliminating the empty breath hold phase altogether.

> **EX:** Try a 3-second inhale, 2-second full hold, 3-second exhale and virtually no empty hold. Under the most stressful conditions where phasic breathing was still possible, this proved to be the most comfortable and achievable for the greatest majority of students.



For extremely stressful situations, reduction to a *"triangular"* breath often works best. Ex: inhale for 3 seconds, hold full for 2, exhale for 3 and hold empty (at the point of the triangle) for an instant, if at all.

Remember, that ultimately these breath patterns are intended to **reduce stress**. You must encourage students to find the natural rhythm that works best for them otherwise the artificial imposition of this structure itself will add its own form of tension and defeat the entire purpose of this tool. Moreover, this breath work must be incorporated regularly, ideally every class, in basic walking, running and movement drills, during the 4 core exercises, during other exercises you may choose to integrate (if appropriate) and of course during combative exercise where possible. **You will fight the way you train.** The final point I would like to submit regarding this type of phasic breath retraining is:

> **When in doubt, breathe in bursts.**

This can be done 2 ways:

1. Simply take a deep inhaling and then *whooshing* out the air, or;

2. Take a series of *short* sipping inhales, and short, sharp exhales (inhale-exhale, inhale-exhale, inhale-exhale). This can generally regulate the worst of conditions and get your cognitive control back within 3-4 cycles. **Burst breathing is the compass the leads us through the fog of self-despair. It is the combat beacon that steers us away from crashing into the rocky shores of pain fixation and vulnerability**

which keeps our servo-mechanism survival oriented. Inhales should be sharp, like you might do if you were sniffing a mildly runny nose. Exhales should be sharp like you were blowing out a candle. The exhale should never be spitty, wheezy, or puffing, as this lack of control in the aperture of your lips, leads to a loss of control of the exhale and elongates it to the point where it creates strain and tension in the throat and/or chest. Weak exhales linger. **Strong, sharp exhales terminate immediately and expunge more carbon dioxide.** To test this, light two candles. Blow the first one out with a sharp exhale, keeping the lips round and the exhale sounding just below the threshold where it whistles. Then open the mouth in a long slit, pulling the corners of the lips back towards the jaw. When you try to blow out the second candle you will notice that the exhale is less sharp sounding and less powerful. Initially, you will notice that the air tends to leave the mouth in all directions. As you continue to explore this type of exhale, you will also notice that the less controlled exhale means you also have less control over the thoracic pressure created by the lungs. This will be particularly relevant when you are absorbing impacts. A tighter exhale and rounder mouth allows you to stop the exhale the instant you wish, maintaining optimal inflation and support in the lungs. The weaker, flatter, wheezier exhale will tend to hiss and linger long after the hit has be received, like a balloon with a slow leak.

Remember, anytime you must exert yourself, particularly during a quick burst of movements, you will always tend to *"lose"* your breath. Quick bursts of action are anaerobic (which literally means without oxygen). When you finish the explosive action, oxygen reserves get exhausted and your ability to intake fresh oxygen can't keep up. Once you come out of a physical explosion of movement, your lungs will still be reflexively pumping faster in an attempt to refill your reserves but they will not be allowing you to fully exhale the waste in your lungs. This means your lungs are full of *waste gases* (carbon dioxide) and there is not enough room for fresh air to enter. The end result is that you keep over-breathing, with the fresh air bouncing off lungs that are full of stale air. Burst breathing allows you to indulge the strong reflexive hunger for inhaling without actually over-breathing, through small, safe, manageable quantities, while placing a larger emphasis, on sharp, strong exhales. Rather than fighting your reflexive desire to over-breathe, burst breathing works with the reflex, but functionalizes the flinch response and enables a quicker recover. With each sipping, sniffing inhale and each, focused burst exhale you deplete more gases than you inhale, and you quickly restore balance to your lungs, making room for normal, regulated, healthy breathing again. From a different perspective, this allows you to also return breath function to the control of the autonomic nervous system and to divert your attention resources elsewhere.

Choose a breath pattern that works for you. It must remove stress, never add it.

Remember: The goal should always be to use *long, natural, relaxed breathing* patterns whenever possible and to use *short, burst breaths* whenever necessary. This is also the 11th breathing principle.

PRINCIPLE 4 – LEADING:

The principle of leading refers to the habit of mindfully using the inhale and exhale phases of the

breath cycle as a conscious trigger for motion. This occurs whenever possible, by seeking to begin a motion with 10-15% of your inhale or exhale. Leading should be considered as a therapeutic conditioning exercise. Realistically, it is not something that we should expect to do on every breath. The mere conscious demands of this would be overwhelming. Rather, leading is a device that helps condition individuals to *"remember"* to breathe. As we saw earlier, we can forget to breathe reflexively during:

- **The Startle Reflex** which generally leads to a large, gasping inhale that terminates prematurely midway through the intake.

- **The Orientation Reflex** (the reflexive attempt to determine *"what is this?"*) which generally causes the individual to forget to inhale completely.

Mindfully leading with the breath is a conscious *pre-emptive* strategy that can assist in bypassing this tendency. Leading is a particularly important concept to integrate during physical fitness training, when the subject is fully aware of the challenge at hand. During push-ups, sit-ups, and other particularly slow and mindful load-bearing exercises, consciously seek to inhale 10-15% of your inhale before beginning the strenuous phase of the movement.

EX: Inhale *10-15%* before you lower yourself in a push-up or squat. Rest in the low position for a second with the lungs comfortably full (it is essential that you experience no strain from the inhale). Then exhale *10-15%* before you slowly raise yourself back up.

When you lead with the breath, you build up power before manifesting movement, like a rocket launching.

Regular inclusion of leading will lead to a number of essential improvements, generally in the following order:

1. It will **immediately** begin to improve the student's **performance** in the context of their fitness work and give them a greater sense of conscious control over their emotions. This will lead to immediate improvements in endurance and will safely allow them to push themselves to higher levels of exertion in their work.

2. This improvement in their fitness will **immediately condition** them to maintain mindfulness of their breath during stressful situations, which will strengthen pre-frontal cortex activity and **prevent** distraction and **hijacking by reflexive fear emotions**. Remember, that physical stress is not fully equivalent to emotional stress, but it lays a foundation. Since emotional stress usually triggers physical symptoms, the way you breathe when you work out will largely determine how you condition yourself

to breathe when you feel these same symptoms from emotional triggers.

3. This will gradually lead to a **spill-over** of more effective breathing habits, as leading becomes a newly conditioned reflex.

4. During particularly stressful combative situations where there is a window for pre-emptive mindfulness, such as before lifting something heavy or before attempting an explosive escape from a challenging grappling position or a blitz of strikes during your entry, practitioners will become increasingly confident at falling back on this breath device. If you watch most students during simulations where they must consciously run through some type of gauntlet or ominous challenge, they will take a deep inhale and hold their breath like they are about to jump into a pool of very cold water. Effective breath leading training should gradually replace this reflex with a mindful focus on leading. For example, in the same *"gauntlet"* scenario, allow students to enter without specification. Filming is ideal since playback will allow you to draw attention to how they held their breath. Then, reaffirm the idea of leading and slowly rehearse it, having students slowly *"dry run"* the idea of beginning their inhale just before they begin to move and stretching the inhale throughout the entry. Gradually build up the intensity and bring them back the resistance of the gauntlet.

   P.S. If students were to be jumping into a cold pool of water, where holding the breath would naturally be necessary, the focus would shift from leading to sufficiency; emphasis would be placed on taking a much smaller sniffing inhale to fill the lungs rather than the reflexive deep inhale we instinctively crave. In this way, the act of inhaling would offer us with sufficient oxygen to function, without adding excess stress to our bodies. Remember, only take the fuel you need for the next leg of the journey.

One key reason that leading works, is that it triggers the commencement of effective breathing habits *before* the most demanding period of exertion. If by comparison, the action and breathing were started at the same time, often, the degree of strain that is encountered initially stresses the subject and causes them to hold their breath. To equate this to an additional concept we will encounter later during our discussion of *Combat Psychology*, leading is also a form of **"Spinal Loading"** that helps fill the short term memory with positive combat goals. Leading provides a powerful visualization of filling and inflating the body on inhales and building up propulsion on exhales like a rocket before lift-off. In this way, it is a powerful psycho-physical tool that pays huge dividends under particularly trying circumstances like that one last pull-up to get you over the wall or that one last burst to get you out from under a dominant opponent when you are convinced you have nothing left to give. Mindful anticipation as we will see is an enormous and essential component in maximizing reaction speeds.

One art where I experienced this mindfulness to leading with the breath during strenuous exertion firsthand was in Indian wrestling (gushti). I would constantly hear a little seeping inhale starting in my partner a second before I was ripped off of my feet and thrown headfirst into the sand.

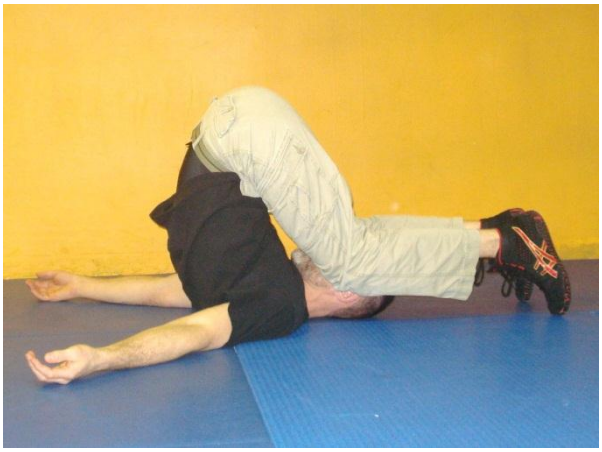
PRINCIPLE 5 – BREATHING FROM THE BODY:

The habit of *"leading"* with the breath is a massive component of basic health and reflex retraining work in Combat Systema. It allows student to massively increase their endurance, calm their emotions and lower the stresses exerted upon their bodies. In combative applications however it is not always a viable option. Leading is typically used in those instances where a degree of preparation is possible (i.e. you are under a much larger opponent and about to perform a sudden explosive movement to escape, you are at a distance and about to enter with a blitz of strikes, etc.). The fifth breath principle, ***breathing from the body***, can be thought of as the combative alternative to leading.

Combative stresses can be sudden and ballistic, like a hard strike to the body or a sudden stacking and compression of the body during a fall or a bout of grappling. In these instances, there is no time to *"lead"* with the breath. **The body, when free of excess tension or fear, will automatically resolve this issue by accommodating the incoming force by exhaling.** A subject who is frozen with fear, for example, will often reflexively hold in their breath when getting struck, compounding the effects of the force. With correct training, they can be taught to allow the force to push the air from their body, exhaling in a degree that is proportionate to the power that is being received.

Compression will cause a responsive body to exhale.

When the body is compressed or twisted by movement, like a leg lift, bending forward, or bringing the knee towards the chest, the body should similarly exhale to permit the range of motion. A very common error of many practitioners is to hold their breath to some degree, particularly during ground flow and rolling work. While leading can be a helpful first step in educating the body to feel the importance of exhaling during compression, movements must be built up to faster and more ballistic levels so that the body can learn to release the pressure more quickly.



Leg lifts are a good example of a solo breath compression exercise.

EX: While balancing in a shoulder stand or leg lift (as illustrated above), practice slowly lifting your legs up and away from your body while inhaling, then release your legs, dropping your knees loosely to either side of your face as you exhale. Repeat this, inhaling as you slowly open the body and exhaling sharply as you suddenly collapse.

Exhalation during compression is the next important breathing hurdle after leading, but it is only part of the equation. An equally essential and much more over-looked component is the idea of *natural inhalation* during the expansion of the body. **If deformation causes breath to be driven from the body, a return to form should also cause the breath to be effortlessly drawn back into the lungs.** Think of a sponge. When a sponge is squeezed, water is driven out of it. In exactly the same way, when our bodies are compressed, twisted or struck, the air we carry in our lungs should be sharply pushed from the lungs. It is important to recognize that this is occurring from the external force or motion and not by our intentions. Unlike leading with the breath, which is fully conscious, we are not talking about an intentional effort here. The reaction that is required is too quick to be preconceived. It must simply be allowed to happen. Trying to *will* it or consciously add to it will only add stress to the process and either delay it or reduce its effectiveness. Returning to our sponge analogy, when a sponge is released and allowed to return to form, the sponge will naturally absorb any water that it touches, sucking it back into its membrane. Another good example of this principle at work is an empty plastic bottle in the water. If you place the bottle under the water and squeeze it, it will expunge any air or water that is in it, exactly proportionate to the force that is exerted on it. When you release the bottle and allow it to return to form, it will suck water back into it. In exactly the same way, when the body is allowed to return to form and when the trunk realigns itself, the body should naturally suck oxygen back inside without the need for a conscious assistance. This occurs naturally in a body that is relaxed and free from fear but tension and the breath holding it can involuntarily spawn can interfere with this naturally efficient process from occurring. Initially, this will seem counter-intuitive. We are often so shackled by tension that we cannot feel the correct flow of our breath.

> **EX #1:** Lay on your back. Begin by leading with the breath and slowly draw your knees in as close to your chest as high as they will come. Hold the knees high for a moment with your lungs comfortably full. Again, there should be no strain in the face or body as you hold your breath. Now, again leading with the breath, slowly exhale and elongate the legs back towards the ground. Perform this 5-10 times.

Now that the body is warmed up, repeat the actions as quickly as you can. This time, instead of leading with the breath, draw the knees in towards your chest rapidly, allowing the compression to push the exhale from your lungs. Seek to keep your exhale comfortable, subtle and proportionate to the compression you feel on your lungs. Again, hold the lungs empty for a second then immediately release your legs and allow them to drop back fully open an elongated to the floor. Allow this action to instantly suck the air back into your lungs. As you continue to repeat this exercise, you will often become amazed by just how little force (and actual breathing) is needed to fuel the motion.

> **EX #2:** Lay on your back. Breathing however you wish, slowly roll from your back to your side to your stomach. Remain there for a moment and roll back in the reverse direction. Once you have repeated this a number of times, try rolling all the way through (from your back, to your right side to your stomach and continue through onto your left side to end up on your back again. You will have performed one complete *"spindle"* roll).

As you evolve this work, try continuing to roll in this manner with minimal energy. Imagine starting the roll from different parts of the body as if you were being pulled by a string. For example, imagine being pulled by the face first, then the sternum, then the hips, the knees and the feet. Explore how many different ways you are able to initiate this motion.

After some exploration, continue to evolve this work by adding a focus on breathing. Initially, think of leading with the breath, inhaling 10-15% of your inhale before you initiate the movement and exhaling 10-15% before you return.

Next, we will add a mechanical demand on the body. Laying on your back, draw both knees slowly into your chest and hold them in place for a moment. As you slowly release them and straighten your legs back out, enter into the spindle roll, rolling onto your hip and then your stomach. As you get more comfortable, you may wish to roll all the way through back onto you back, but begin slowly. Simply by compressing the knees into your chest you will change your breathing capacity and focus and you may experience a huge decrease in power initially.

Finally, evolve to bringing those knees into your body quickly and ballistically. Start by laying on your back only, plunging the knees into your chest and allowing them to force the exhale out of your body for you. Explore this for a few minutes, discovering how little assistance is required to exhale. Let the compression exhale for you. As you improve your feel for this action, plunge the knees into your body to trigger your exhale and allow the natural elongation and opening of the body immediately after it to lead you into spindle. This action is exactly like the 4-cycles of a car engine. There is an intake of fuel. The fuel is compressed by a piston. The compressed fuel is ignited creating a burst of power and the exhaust is expelled. Intake, compression, power, exhaust. We inhale as we lay on our back. We compress during the fraction of the second in which we ballistically plunge the knees up and into the chest. This loads the body with power, particularly the naturally elasticity sleeping in our connective tissue and our body naturally exhales the waste from our mouth. As we are launched into our spindle roll, the opening and elongation of our body naturally sucks fresh oxygen into our lungs, preparing us for our next action.

There are a number of simple exercises that can be used to explore an understanding of breathing through the compression and realignment of the body. The simple variations outlined above lay an essential foundation for optimizing breath integration during the dynamic of combat, and teach us how to absorb impact as well as how to use the inevitable postural fluctuations demanded by movement to fuel explosive, efficient movement.

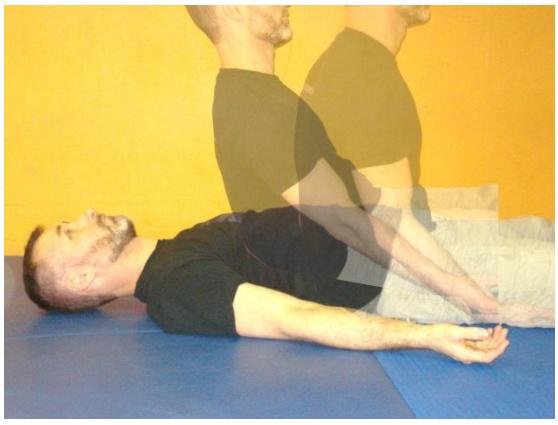
PRINCIPLE 6 – INDEPENDENCE:

If you ask most people associated with fitness *"how"* to breathe, they will tell you simply to **exhale when you force**. This certainly is the easiest and generally the most effective way to breathe. Exhaling while you exert allows you to minimize internal pressures and prevent injuries to organs while emptying the thorax and increasing your range of flexibility and movement. Exhaling under stress is even more important when

absorbing impacts from strikes or when hitting the ground while falling. Exhaling when you force is just *part* of the story however. **During a combative dynamic, it's not always possible to match your breathing entirely to your motion.** This is particularly true during periods of prolonged exertion (for example escaping from the bottom position from underneath a larger dominant opponent who you are unable to escape from). Trying to continually time exertion with exhalation can create a form of expectation and anxiety. Moreover, the *"down-time"* in between exhales often leaves you distracted and prone to further dominance and attacks. We often see this in situations where newer students are pinned for long periods of time. The inability to inhale fully adds to the strain as students struggle to find the energy and the moment to escape. This creates a sense of *"collapse"* or emptiness in the body after the exhale and leads to a difficulty to refill the body. During grappling particularly, this can make you more vulnerable to organ damage, collapsed lungs and joint damage.

Here are a simple series of exercises that beautifully illustrate the relationship of breath phase to body stress:

1. Begin by laying on your back with your legs comfortably apart and straight. Perform a basic straight back sit-up (as detailed in the core exercise section). Try to take roughly 3-5 seconds to sit up to 90 degrees and then another 3-5 seconds to lie back down. As you do, **try to inhale on the way up and exhale on the way down.** For most people, this is the most comfortable variation, since inhaling bloats and supports the torso and reinforces the sit-up. The danger however is that by exhaling while lowering, you exhale too fully and collapse, allowing the body to fold and bend near the solar plexus. The first step is to try to keep the body solid despite the fact that you are exhaling. Repeat this at least 10 times.



2. Next, repeat the exercise by **inhaling while both rising and falling.** Take a brief pause initially between each phase to exhale. Inhale up. Exhale and rest. Inhale down. Exhale and rest. This is a simple way to isolate the comfort and power around inhalation.

3. Now **inhale <u>and</u> exhale on the way up** (inhale for the first half of the lift and exhale for the last half). You are performing a full breath cycle for each half of the sit-up. Then inhale and exhale while on the way down. This is quite comfortable because you are filling the lungs to bring you to and through the most strenuous portion of the range of motion.

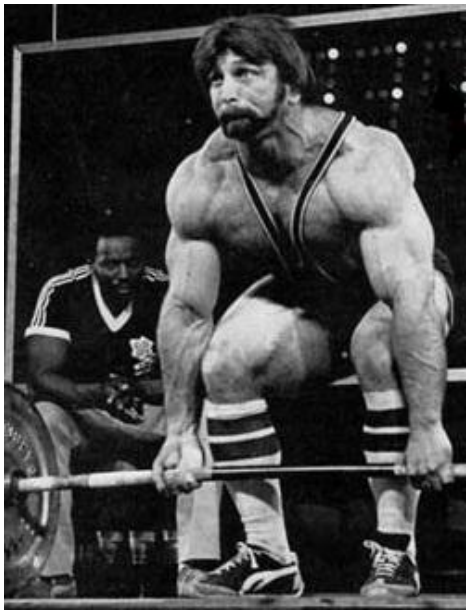
4. The last step is **free play**. Perform your sit-up at an even cadence (for example 3 seconds up, 3 seconds down), but breathe as you wish, inhaling and exhaling for varying lengths and durations. For example, just inhaling for 2 seconds and exhaling for 2 places your breath just ahead of your motion. You will begin exhaling before you have finished sitting up and begin inhaling when you are

only half way down. This type of free play is limitless and is a great way to teach the body how to force regardless of where you are at in your breath cycle. Later, this same concept can be extended to light grappling, stand up sparring or any other phase of training you wish.

Another simple exercise that should be regularly employed is to practice stretching the breath during strenuous activities. For example, while skipping, running, hitting focus mitts or wrestling, try to stretch your inhale and exhale out as long as comfortably possibly. Remember not to overdo this. The act of breathing should never add stress to your body. Rather, find the comfortable maximum you are mindfully able to maintain. The simple focus on breathing will provide you with a combative goal that can effectively distract you from the despair and related emotions that so often infect our performance. Should you ever find yourself straining, using a few short burst breaths to restore yourself and continue.

PRINCIPLE 7 – CONTINUITY:

The 7th principle is to train the body to constantly breathe. As self-evident as this may sound, we have seen that both anxiety and reflexive triggers like the *startle* and *orientation* response can cut our breath short or intercept it completely. We hold our breath all the time when we are stressed as an adaptive response (designed to facilitate survival through concealment, swimming, etc.) People have heart attacks getting up off the couch to get their remote control, while sitting on the toilet and while having sex, all because **they strain without breathing**. People injure themselves in the gym, pushing past their body's capacities insensitively and rushing through exercises, all because they are not breathing. Most people begin their actions without any form of breathing, made tense by the very challenge ahead of them. Other forms of breath holding are quite psychological, as people puff themselves up to appear larger than they are in an attempt to intimidate, generally, impinging if not completely stopping their breathing. Still others consciously train to hold their breath to strengthen their thoracic chamber (valsavic breathing) - a practice widely employed by heavy weight lifters.



Some practices, like power lifting, advocate the intentional holding of the breath to temporarily increase pressure in the trunk. While measurably effective, the dangers and strains to the body are not consistent with either combative or long-term health goals.

As the goal of the *Combat Systema* practitioner is to maximize the power of their greatest weapon (their brains) and to maintain a balance between emotional control, cognition and relaxed reflexive body intelligence, it only follows that we must begin by **breathing continuously**. When we hold our breath, our actions and thoughts usually follow suit and freeze.

As self-evident as continuity may initially sound it must be constantly reinforced. When performing your own work, be mindful of your breathing. When teaching, constantly and supportively bring attention to this

natural and nagging performance hiccup. When breathing stops or falters, thought and movement usually follow suit.

> *Please note that breath holding is *only* acceptable when it is consciously and mindfully performed, such as when you are retraining your breath through *square, rectangular* or *triangular* breathing and stretching your interim phases, or when you are performing stress exposure training to increase coping and recovery skills, like drown-proofing.

PRINCIPLE 8-RELAXATION:

All Combat Systema breathing should occur naturally. No forceful shouting or exhales are reinforced asthese tend to add more tension than they resolve, exciting the body systems, elevating the emotions, heart and breath rates and ultimately increasing oxygen demands in the body. At its most extreme, Combat Systema breathing can involve the ***burst breathing*** we discussed earlier, where exhales are kept short and sharp like you are blowing out a candle. At its softest, Systema breathing is quiet and fluid, long and relaxed. Emphasis, as we will see during our treatment of grappling, is even placed on learning to use the body to squeeze out exhales during compression and to naturally suck in inhales during elongations and expansion, much like a sponge as we discussed earlier.

Perhaps the most important way to interpret the principle of relaxation is to recognize that all of the breath retraining modalities offered in this handbook are just rough frameworks. Remember to use them however you find most effective. As I stated earlier, in my study under Russian breath masters, I would often see students tediously writing down every pattern and variation of breath that was employed during a training session. Often, there would be literally dozens of variations per hour and these students would have page after page of formulas: inhale for 3, hold for 2, exhale for 3, hold for 2 and so on. These students were missing the point. There is no secret formula. The placebo benefits of breathing are not dictated by some arbitrary pattern. Breath work is about developing your own personal intuition and body sense, not about memorizing or decoding random patterns that are being intuitively suggested by a coach. **Slavishly seeking to adhere to overly-specific constraints will only add more tension than it resolves.**

PRINCIPLE 9—HOT VS. COLD:

The perceived temperature of breath is a subtle yet important attribute of successful breathing. **The notion of breath temperature is largely a question of visualization** rather than actual measurable temperature however focus on imagined temperature is widely used in visualization, hypnosis and relaxation therapy circles. For those of you familiar with this type of work, thoughts of inhaling heat or of imagining your inhale as red light and then exhaling cool, or exhaling blue light, are common strategies for assisting relaxation. In exactly the same way, Combat Systema employs a consideration of breath temperature to assist the achievement of desired psychological or emotional states. Given our previous discussion of the mechanisms underlying the Placebo

effect, this comes as no surprise here. Simply put, visualizations that favor *cooling breaths* will tend to help **calm** the practitioner. Refreshing, cool inhales help transport the psyche to a calmer frame of reference. Cooling breaths are used to resolve excited emotions, to lessen pain or to simply relax and reconnect to the body. Deepening these visualizations by picturing the breath as bright blue energy entering the body can help deepen the effects. Hotter breaths are conducive to **elevating t**he body systems, focusing combative intent and preparing the practitioner to encounter aggression. In exactly the same way, visualizing hotter breaths is typically done by picturing the breath as vibrant red or orange energy as it passed in and out of the body. Mechanical assistance can come from visualizing the breath moving along the front of the throat with emphasis on rounding the lips into a circle to help cool the breath (burst breathing is a good example of a cooling breath). Keeping the lips in a tauter slit formation and feeling the breath passing predominantly along the back of the throat is conversely more conducive to cultivating a hotter sense of breath.

Combat Systema is based on the notion that the human body operates best when it free from the debilitating effects of fear, which in turn helps to optimize biomechanical efficiency and maintain meta-cognitive clarity. To this end, breathwork should generally favor coolness. Small exceptions are made during specific visualization work:

- During hypnotic regression or **visualization**, where an individual is being directed to recreate a specific emotion—for example, to deeply re-experience a fear as part of exposure and coping training.

- During **simulations** where individuals are playing aggressors.

- During **extreme situations**, where an individual has no choice but to endure a potentially frightening stimuli, such as running through a burning door frame, running to secondary cover under a hail of bullets, entering with a salvo of strikes against an opponent who is effectively keeping you at a distance, etc.

PRINCIPLE 10—PERMEATION:

The principle of permeation is largely utilized during health and healing work. Combat Systema frequently employs visualizations which involve imagining the breath passing into or through specific body areas. For example:

- During a prolonged push-up hold, imagine **inhaling the pain** *from* your triceps as if your breath were a vacuum and exhaling it through your mouth to harmlessly dissipate the tension in the space around you;

- When you are suffering from an injury, imagine **breathing through the injury** to wash away the tension and the blockage and flush away the pain;

- During relaxation work, **breathe in and out of various areas of the body** to bring sequential awareness to them and to help progressively relax you.

We have seen that a large part of the mechanism at work here is the activation of the prefrontal cortex, overriding the emotion and pain centers of the brain. We have seen that at a chemical level, breath can somatically control the other involuntary systems of the body. Like breath temperature control, permeation is largely a question of visualization but even permeation has some physical foundation. Remember that breath is never a purely mechanical endeavor, with air simply being puffed in and out of the lungs. Rather, **breathing is a physiological process**. Every inhale that you take transforms that oxygen and then carries it through the blood stream to the furthest reaches of your limbs and the smallest nooks of your body. This realization is often helpful for the more critical among us or those with less developed visualization skills.

Permeation, like breath temperature, is a good way to *replace distracting thoughts* with a **functional goal**. Humans are naturally prone to predict. As we will discuss in our treatment of *Combat Psychology*, there is simply so much information bombarding us in our environment that we can't process it all. To simplify things, our brains instinctively look for patterns to help streamline the data that pours in through our senses. We create a simplified model of the world that we *expect* to find. Coupled with a profound curiosity, this leads us to instinctively seek causality. What is causing this? Why is this happening? More importantly, what will happen next? **Anxiety stems from this reflexive drive to anticipate.**

- When we experience a surprising stimulus we trigger an *"unconditioned"* response.
- When the stimuli is expected somewhat however, if we do not have an answer readily available for that threat, we feel anxiety. This is a *"conditioned response"*.[44]

Anxiety is therefore a biological adaptation that motivates living organisms to deal with traumatic events before they actually happen. We either *prepare* for the trauma or *flee* from it, thus reducing its harmful effects.[45] This survival mechanism is constantly firing in us, even when we are trying to relax, heal our body, or distract ourselves from pain, which complicates matters significantly. Permeation is an accessible, quickly effective and powerful boost to our visualization arsenal that can unite our breathing with the strongest aspects of our consciousness and create a potent psycho-physical healing tool

***How* should you breathe?**
Long, sufficient and naturally.

***When* should you burst breathe?**
Whenever you need to and for as long as you need to get back to normal long breaths.

PRINCIPLE 11—BREATHING LENGTH:

As previously noted, the goal when breathing should be to employ long, sufficient, relaxed and *stress-free* breathing whenever possible and to employ *burst breathing* whenever necessary and for however long that is required in order to comfortably return to long breaths. Research has proven that

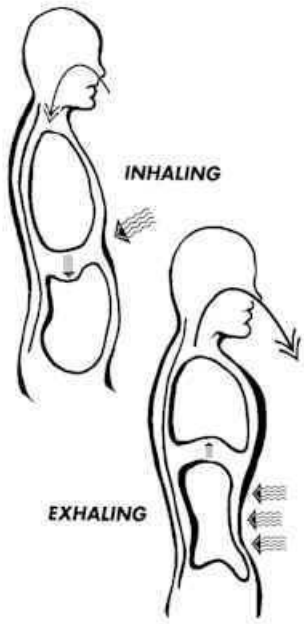
[44] Mongeluzi, 1996
[45] Salter, p221

just by prolonging exhalations relative to inhales (i.e., using briefer inhales with prolonged exhales) it is possible to reduce physiological and psychological arousal from threats (in this case specifically of electric shock).[46] Pilates founder Joseph Pilates prescribed exhaling so fully that in his words it should be as if you were as if you were wringing all of the water from a sponge. While there is arguably therapeutic value in such complete expulsion, this will ultimately remain the domain of specialized exercises and will not be possible within the domain of functional combat. In a crisis, simply prioritizing exhales is usually sufficient. When long exhales are difficult or impossible (due to injury, heightened cardio state, contracted ribs and diaphragm, etc.) it may be more effective to switch to quick burst breaths where inhales are kept to a short, sipping sniff and exhales are limited to sharp, tight whistling exhales.

Our bodies each have a measurable **total respiratory resistance** (the resistance in the flow of air by the airways, lung tissue and chest wall). This attribute is a critical health factor in disease. [47] When we lengthen our breaths, we decrease this resistance by literally stretching and keeping healthy the various tissues and muscles responsible for breathing. This emphasis on deep breathing in turn keeps the body more oxygenated and better feeds the muscles and organs while helping to trigger the relaxation response.

The need for total lung health points to the importance of intentionally working all three mechanical aspects of the lungs:

- **Abdominal/Diaphramatic**
- **Intercostal/Thoracic**
- **Sub-Clavian/Shallow**



Abdominal / Diaphragmatic Breathing

Often, we harbor certain prejudices against specific breathing patterns. Deep, abdominal or diaphragmatic breathing is widely regarded as being preferable. Shallow, sub-clavian breathing is generally touted in a negative light. In reality, **every breath type has its own indispensible role and function.** Admittedly, abdominal breathing is generally preferable. It is preferred for inducing deep states of relaxation and for filling the body with oxygen. The ability to breathe abdominally and the degree to which it is possible is widely dependent on circumstance. During certain grappling situations as we will see, it can be impossible to breathe fully into the abdomen. Compression of your own body (being stacked with your legs over your head), compression into an object (most commonly on your belly against the ground) or compression by a foreign object (like your opponent's knee) can all seriously impinge your abdomen's ability to expand. In these situations, it is generally necessary to expand the next largest available cavity—the ribs. This type of intercostal

[46] Cappo and Holmes (1984)
[47] Let, p452

breathing is a very important skill to have. It begins with simple awareness and sensitivity—as Thomas Hanna noted, **the better you feel your body, the more able you are to move it**. In extreme situations, even inter-costal breathing may not be possible, forcing you to limit yourself to sub-clavian or what is commonly and quite negatively referred to as shallow breathing.

Although we will be discussing all *three* of these breath modalities and detailed exercises for cultivating each of them, try this simple drill now to root a clearer and more tangible understanding of each distinct breath pattern:

- **Abdominal Breathing:** Sitting comfortably, inhale deeply and naturally through the nose and exhale out through the mouth. Visualize the air rushing down the back of your throat and filling you up all the way into the base of your stomach. It may take a few breaths to do this sufficiently and without strain as we generally tend to force the inhale too much initially. Find your groove and just enjoy 10-15 deep abdominal breaths.

Here I illustrate a deep compression exercise while balancing a 25 pound medicine ball. In this type of extreme position, it is difficult to breathe in the abdomen. Emphasis must be placed on expanding the ribs laterally and towards the back.

- **Intercostal Breathing:** Next, wrap your arms around your chest and shoulders and hug yourself as powerfully as you can. From this position, most people initially start to breathe from the ribs, feeling a large, almost resistant expansion particularly throughout the sides and back of the ribs. Feel this for 10-15 deep breaths. Next, without changing positions, try relaxing the ribs and breathe abdominally, below the tension of your grab. You will generally notice that your abdominal breaths are now more subtle and relaxed. If you instinctively began by breathing abdominally in this position, after 10-15 deep breaths, keep the position and switch to intentionally breathing in the ribs.

- **Sub-Clavian Breathing:** Literally, *"under the collar bone"* this type of breathing occurs in the uppermost section of the chest with little to no affectation of the ribs or abdomen. To experience this feeling, from a seated position, bring your knees to your chest and wrap your arms as far around your knees and as tightly as possible. Squeeze with your arms constantly and begin breathing. You will find it very difficult to inhale into the abdomen from this position and even intercostal expansion can be quite difficult and resistant. See if you are able to take smaller breaths, inhaling into the upper chest. Initially, it may take some sensitivity to feel this. **It can be**

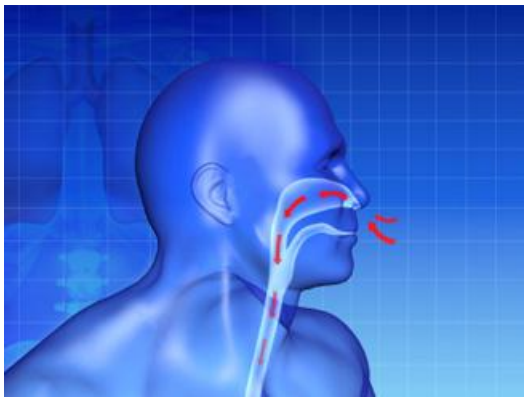
Pete Jensen illustrates a modified airplane against resistance to the spine. In this position, the abdomen is compressed both by the ground and by the contraction required to hold the position.

enough to simply feel that you are not fully breathing in either the ribs or the abdomen. If this is the case, you must be breathing from under the clavicle. Because this area of the body tends to be the least flexible and mobile, it tends to provide the least tangible sensation, but with just a little work you will begin to feel the movement occurring there.

These basic breath principles initially can seem quite daunting. In reality, while it is helpful to isolate and drill individual principles in specific training sessions, it's impossible to consciously maintain more than 1 or 2 at a time. In actuality most of them overlap and with a little practice, the benefits of the isolation work will begin to carry over to other areas of your day-to-day life and create lasting subconscious change. Again, these principles are a loose framework intended to awaken new sensitivities and to give substance to your regular fitness and combative training. **Do not allow them to become dogmatic ideologies or rigid shackles that impede your performance or restrict your freedom.**

A SUMMARY OF THE 11 PRINCIPLES:

PRINCIPLE 1 – IN THROUGH THE NOSE AND OUT THROUGH THE MOUTH:



- The nose helps **filter** the air from toxins, chemically **changes** the air via the sinus cavities, **regulates the temperature** of the air, and helps **restrict air intake** and reduce the risk of over-breathing.

- Consciously training nose to mouth breathing can greatly alter your stress response breathing patterns and provide you with a technique for regaining cognitive control of your emotions during a crisis.

PRINCIPLE 2—SUFFICIENCY:

- We must teach ourselves not to over-breathe. **For most individuals the act of breathing alone adds more tension than it resolves.**

- Mindfully train yourself to be aware of *where* the stress is occurring in your body when you inhale and exhale, particularly during physical exercises, and study how to release that tension, breathing more and more subtly.

- **Our survival instinct is to hoard air.** Gradually, we can teach ourselves just how much we can do with less air and replace this primal fear with newfound **breathing confidence**.

PRINCIPLE 3—PENDULUM RHYTHM:

- Healthy individuals do not breathe bi-phasically (inhale to exhale directly without an interim pause) but rather have **4 sections** to their breath cycle (inhale, full lungs, exhale and empty lungs).

- By consciously cultivating these *"controlled pauses"* between the intake and expulsion phases, we can stretch our breath cycle, reduce our over-breathing and minimize the stress that is associated with it.

- Breath patterns can include breathing in:
    - **Square patterns** (4 equal length components like 3-3-3-3 second phases)
    - **Rectangular patterns** (oblong patterns like 4-2-4-2) or
    - **Triangular patterns** (like a 3 second inhale, 2 second full pause, 3 second exhale and virtually no hold empty).

Circumstance will dictate which *"shape"* is most appropriate for you, with square being the ideal but necessity moving towards rectangular and triangular breathing as situations become more stressful and taxing.

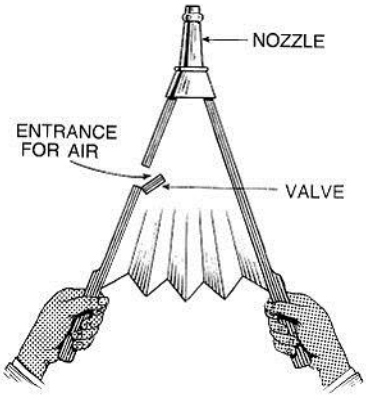
PRINCIPLE 4 – LEADING:

- **Most people begin forcing and performing a physical action without any breath behind it.** They *"forget"* to breathe and once they remember to start, their body is already tense from exertion. This makes it harder to inhale, because the muscles don't allow a full enough intake.
- During fitness training, mindfully practice beginning **10-15%** of your inhale before you begin moving, like a rocket that fires its jets and builds up power before beginning to lift off.
- This technique is largely used to **improve performance** and **reduce physiological stress** during fitness training, however once it becomes second nature it can also be used before large, explosive combative movements, like when scrambling to escape from the body position, or before performing a salvo of strikes.

PRINCIPLE 5 – BREATHING FROM THE BODY:

- **The world is constantly trying to deform our bodies.** When we lack structural awareness, we incrementally surrender to these deformations. When we maintain structural awareness, we oscillate between necessary deformation (as dictated by circumstance) and a return to correct alignment.

- These structural fluctuations can helps to squeeze air out of our bodies and suck it back in, just like a sponge ejects water when squeezed and absorbs when released or like the bellows of a blacksmith expels when compressed and sucks in when opened.



- By training ourselves to allow body compression to naturally expunge air and body elongation to naturally absorb oxygen we maximize our breath efficiency.

- *Breathing from the body* is quick and natural for a relaxed body. *Leading* with the breath is its conscious, preparatory counter-balance. We breathe through compression when there is no time to prepare or anticipate.

PRINCIPLE 6 – INDEPENDENCE:

- Most people assume that breathing *"well"* means simply exhaling while you force. While this is generally ideal, combatively, we can't always afford to wait until our breath cycle lines up with our movement. **We must learn to move independent of our breath as well.**

- This can be done through simple fitness exercise. For example, take a set of push-ups. Practice inhaling on the way down and exhaling on the way up. Perform 5-10 reps. Stay elevated. Inhale without moving to reverse the pattern. Now exhale on the way down and inhale on the way up. Perform 5-10. Then practice both inhaling and exhaling during the downward part of the push-up and both inhaling and exhaling on the way up. Evolve to long slow breaths (for example take 10 seconds for a single breath cycle) while performing push-ups that take 2 seconds (so that you perform 4 push-ups for every full breath cycle). This simple progression will reinforce the independence of breath and movement.

- At its highest level, practice moving, flowing, rolling, even fighting, with long, independent breath and organic movement.

PRINCIPLE 7 – CONTINUITY:

- Simply put, train yourself to breathe constantly. Conditions of stress like anxiety, the *startle response* and the *orientation response*, can all cause us to cut short or else completely forget to breathe. In everything that you do, mindfully try to breath constantly.

- The only exceptions are controlled pauses during breath retraining (which are essentially considered fluid aspects of the breathing cycle) or else intentional holds during specific psychological training (i.e. drown-proofing).

PRINCIPLE 8 – RELAXATION:

- All Combat Systema breathing should occur **naturally**. No forceful shouting or exhales are encouraged or trained as these tend to add more tension than they resolve, exciting the body systems, elevating the emotions, heart and breath rates and ultimately increasing oxygen demands in the body.

- Perhaps the most important way to interpret the principle of relaxation is to recognize that the breath retraining modalities offered in this handbook are rough frameworks. Remember to use them however you find most effective. **Slavishly seeking to adhere to overly-specific constraints will only add more tension than it resolves.**

PRINCIPLE 9 – HOT VS. COLD:

- The perceived temperature of breath is a powerful psycho-physical tool for intensifying breath results.

- Cold breaths tend to help calm and relax the body (which is generally our goal).

- Hot breaths tend to excite the body's systems (which can be used during reframing and exposure visualization, simulation training and occasionally when summoning the confidence to

enter a particularly aggressive or difficult situation (i.e. a barrage of strikes, a live-fire environment, etc.)

PRINCIPLE 10 – PERMEATION:

- Another visualization device, this is largely used during health work or when trying to overcome specific pains.

- It involves simply visualizing the air entering, moving through and/or exiting through specific physical areas of the body (for example, inhaling through the cramp in your thighs, inhaling through the anxiety in your chest, or inhaling through your tension).

- This helps reinforce the Placebo effect inherent in breathing.

PRINCIPLE 11 – BREATHING LENGTH:

- Whenever possible, **try to breathe using long, sufficient, relaxed and *stress-free* breaths.**

- **Use burst breathing whenever necessary** and for as long as necessary in order to get back to long breathing.

All breathing can be either:

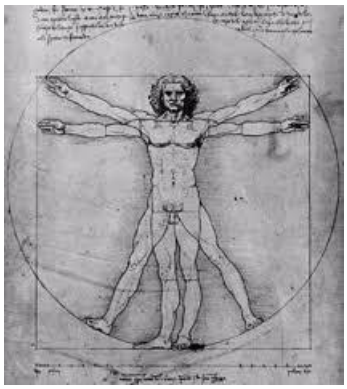
- **Abdominal/diaphragmatic**

- **Intercostal, or**

- **Sub-clavian.**

We will discuss how to cultivate each later on, particularly during our discussion of ground fighting and flow.

PILLAR 2-STRUCTURE:



The second foundational principle of *Combat Systema* is to seek to **maximize the structure of our body in any given situation**. The topic of structure in Systema is one of varied interpretations. In my opinion, many RMA practitioners grossly misinterpret the concept. This begins with poor translation to the word *"form"* rather than structure, which seems from the outset to imply some degree of ambiguity, subjectivity, and formality rather than simply a measurable principle or efficiency. What is good form? From table manners to kata to figure skating to art, no two people agree fully. Form is subjective. Structure however is measurable. How much stress can the structure of the bridge take before it should collapse? By measuring the resistance and capacities of the components involved we can have a much clearer answer.

This deviation from form to structure is often worsened by keeping the concept too broad or ambiguous or too idealized. People are often told to keep good form but for the most part, this is interpreted as slavishly maintaining a stiffly erect posture, even at the expense of getting hit. The cherry on top of this sundae is a complete lack of pressure testing, which allows the misinterpretation to go unchallenged and ultimately uncorrected. The end result is a mechanically stiff spine with limp noodle arms dangling at the side, which for most practitioners becomes a stance in its own right—and a rather poor choice of one at that.

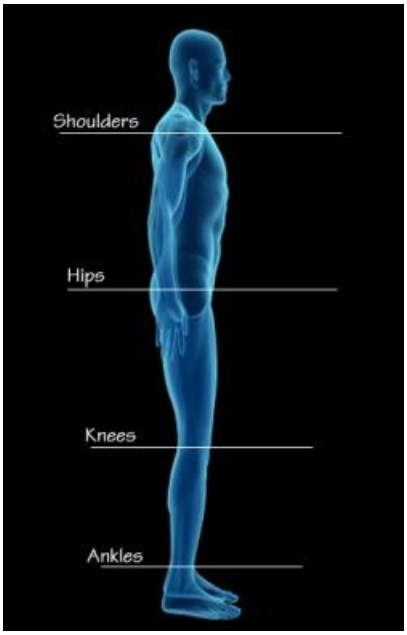
Other RMA camps take a far more practical approach. For them, structure pertains simply to a scientific understanding of biomechanics. Specific principles of alignment, leverage and energy expenditure are used to lead a student first to a conscious understanding of efficiency and then ultimately to an intuitive streamlining of their performance. A second important distinction is that structure is seen as something that is **relative to context**. There can be no one universal best way to stand or move that will suit every possible situation. There can however be one best unique way to stand and move in each unique situation. The gateway to teaching the body how to solve this puzzle, how to access and unleash infinite possibilities is through a scientific understanding of movement and balance, and a mindful exploration of biomechanics applied to ideal drills and applications and then moving through increasingly pressure-filled, resistant and variable challenges.

To begin, we must understand the body under ideal circumstances. When we are simply standing still, unaffected or challenged by circumstance, each component of the body operates best if they are stacked and naturally balanced above the one beneath it:

- **The head up is kept comfortably up and balanced** above the shoulders with the chin slightly tucked. This corrects and balances the first of the three essential spinal curvatures (*the cervical arch*)

- **The shoulders are rolled comfortably back** so that the arms can hang heavily and loosely beneath them. This keeps the scapula balanced and highly mobile while minimizing excessive slouching or hunching in the second spinal curvature (*the thoracic curve* of the shoulders).

- **The tailbone is kept comfortably tucked underneath the hips.** This lessens the strain on the third spinal curvature (*the lumbar arch*) which in turn permits greater connectedness and unity between the upper and lower body, providing a greater range of motion for the legs (particularly for lifting the knees and kicking), and channels less stress to the abdomen, which in turn facilitates relaxed breathing.



- More important perhaps than even the respective advantages of each curvature, collectively the *cervical, thoracic* and *lumbar* all **provide a natural state of counter-balance in the body**. When correctly maintained, this in turn provides the individual with greater potential **elasticity** and **energy** for evasive movement and explosive, wave-like power generation for striking as we will see.

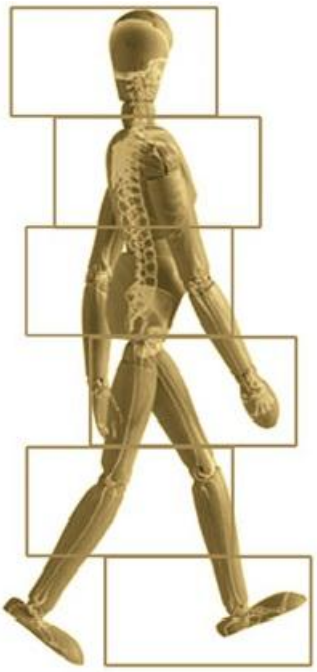
- Spinal balance also helps keep the **core muscles** of the body comfortably and naturally engaged which help protect and cradle the organs.

This alignment prepares the spine for ideal circumstances. This is our baseline state. The goal in *Combat Systema* is however to seek to **maximize the structure of our body in any given situation**. We must therefore be prepared to adapt our structure to fit the demands of survival. The exercises prescribed in our earlier discussion of compression and breathing from the body, with alternating and synchronized knee lifts, are an excellent example of how breath and structure overlap. The three spinal curvatures relate very directly to the three level of breathing:

- Explore how flexions of the neck activate an awareness of sub-clavian breathing. Simply laying down and mindfully raising your chin to your chest can be a great way to gain an awareness of the breath in this area.

- Similarly, rounding and contracting the shoulders is a great way to teach the upper back to breathe into the intercostals.

- Finally, curling and releasing the tailbone is a very subtle, deep and powerful way to cultivate a feeling of abdominal breaths being sucked in and squeezed out from the base of your body.

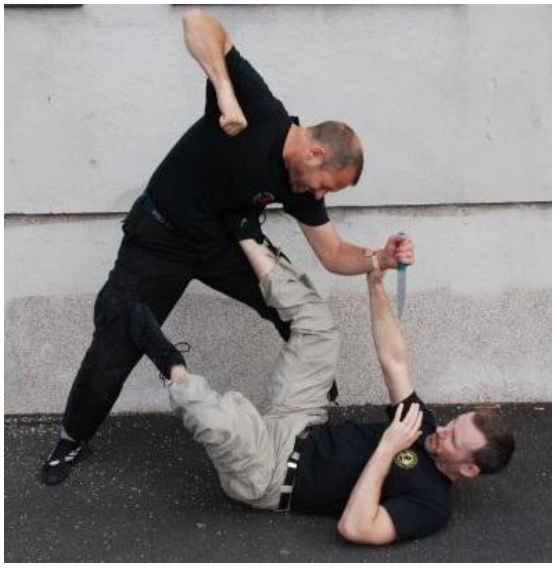


From this simple relationship we reinforce the most important lesson espoused in *Combat Systema*—**structure is relative to context**. In every possible position there is measurably and mechanically a best way to move and use our body. A thousand motivations may deform my posture—a punch to the plexus, a knee to the ribs, a finger jab to the eyes—and deformation is required to best survive these threats and minimize the harm our body receives but the moment it is possible to realign our structure we do. Just as when we breathe, we seek to breathe long whenever we can and to burst breath whenever we need to for as long as we need to, **we seek physically to maintain our ideal structure whenever we safely can and to deform in any way necessary, in the amount necessary, for the duration necessary, to best survive any threat.**

When structure is optimally maintained, the components of the body can be seen as each performing their intended purpose:

- The **bones provide structure**
- The **ligaments and tendons lend alignment and elasticity**
- The **muscles provide the spark needed to move and pull the levers of your bones**

When the body becomes deformed, greater strain is placed on all of these systems, immediately depriving the individual of biomechanical efficiency. With repetition, over time, these stresses can become more and more deeply-rooted and their effects further reaching until they not only impede immediate function but damage and limit health.



Structure is relative. There is more to structure than maintaining good posture. Effective structure means finding the strongest and safest position for any given situation.

It is impossible to avoid deformation. Life is full of stresses and stimuli that require adaptability, but we should be mindful of these deformations. In our day-to-day life, we must guard against prolonged and repetitive deformations to safe-guard our fullest possible health. Moreover, we should use the core exercises to restore our bodies at the day's end, to prepare ourselves in the morning for the day ahead, and to warm-up at the commencement of training sessions to remind our bodies of their intended alignment. Conflict dynamics are particularly wrought with stimuli that can challenge our bodies and seek to deform us. As a rule, recognize:

- Our bodies operate most efficiently when we maintain **awareness** and understanding of our structure;

- To this end, under ideal conditions, **we should seek to maintain the best possible structure for any given situation**. When we must sacrifice ideal structure, we should resolve ourselves to returning to ideal structure as soon as it is *safely* possible;

Despite our best efforts, violence will deform our bodies and requires adaptability or consequences.

Adaptability is essential. There is a real and ever-present danger in blindly adhering to the ideal of form regardless of circumstance. While evasion from force as a *"whole"* is preferable (i.e. moving the body in one balanced and connected mass), evasion using only the affected part is often required (for example buckling at the hips to avoid a stab to the groin). Evading as a whole generally requires early detection and pre-emptive movement. **Surprise conversely is more likely to trigger flinch responses, temporarily deforming the body.** Close range combat is more likely to deform the body, as less reaction time is generally available and space can be restricted and limit fuller movement. A charging attacker can often be side-stepped or at the very least steered. A sucker punch from within your personal space however can rarely be dealt with without deformation. Let common sense and experience be your guide here;

Care should be taken to avoid needlessly **volunteering** for deformation through fixed stances. Attempts to hunch in order to lower your base as grapplers are prone to, or to roll the shoulders like boxers, are all range specific and game-dependent. The relative security which these deformations provide assumes a specific *"high probability"* attack (the shoot and takedown in the case of the grappler and punches to the head and perhaps torso in the case of the boxer). The moment restrictions regarding the types and varieties of attacks are lifted, particularly if weapons and multiple attackers are added into the equation, the advantages of pre-set stances diminish rapidly. Most damning is the message such stances convey. While the intent of sportive sparring is clear, no such certainty exists in actual combat. Moral, psychological, professional and legal ramifications reinforce the preference for early detection, avoidance and de-escalation. Even where a forceful response is necessary and justified, little value can be had from **advertising your intent**. Tactically, you warn your aggressor, reducing your likelihood of success. Legally, you project a less favorable demeanor, and weaken your argument for the just use of force, as you evidence your abandonment of avoidance efforts in favor of escalation. Where Combat Systema deviates from other interpretations of Systema is that while we are against adopting a universal stance for all combat, we are not against modifying our stance to better meet a threat. We will for lack of a better term, *"play"* a modified wrestler's stance when grappling and an adapted boxer's stance when boxing as we will discuss. Deformation is not the devil. As noted earlier, neck is a lever. If I keep that lever long and sticking out of my shoulders it takes less power to affect the brain resting on the end of that stick (and in my case, it's a skinny stick). My neck is therefore weaker. If I tuck my chin, round my shoulders and raise my shields to guard my head, I am better able to survive higher degrees of force. If I am getting attacked with a salvo of punches, structurally, a modified boxer's stance is my best short-term solution as I seek to transition to a clinch, escape or counter-hit. I do not however walk through all aspects of a fight in this stance.

EX: One very simple drill which I use often when teaching renovated boxing is to have students *"square off"* from a distance and slowly compress that space. From 10 feet (3 meters) away, I teach them to use this time of safety to shake out their arms, wash out their lactic acid and oxygenate the tissue. As they walk closer (2 meters/6 feet) I have them raise their arms into a jogging position, bending the elbows roughly to 90 degrees and keeping their hands slightly contracted and ready to box (if working fist work) or else open if working an open spectrum of tools. As they get within arm's reach (roughly 4 feet or a little over a meter) I have them raise their hands up to and around their chin and jaw. Then I have them press in against each other raise their arms up completely into shields, grabbing the top of their head so that the points of their elbows jut both protectively and offensively towards their opponent. Then they can slowly work their way back out again and modify their stances accordingly. This is a very simple idea that we will see again in our discussion of striking, but I preview it here as a matter of relevance.

Since the idea of form or structure is so widely misinterpreted, I will run you through a scenario to give you another, less sportive example of how I interpret effective structure:

- I'm sitting on a chair. My feet are both comfortably apart and uncrossed to avoid undue stress on one joint or another. I am balanced and symmetrically supported, with my hips tucked back in the seat and spine supported by the back of the chair. This is my ideal structure in an ideal circumstance.

- To stand, I fuel the motion with breath, inhaling 10-15% as I lean forward with my torso from the waist and I push myself upwards evenly with both legs so that I am standing comfortably, feet shoulder width. My tailbone tucks under my hips slightly and a slight flexion is maintained in my knees.

- I begin walking, keeping the majority of my weight balanced.

- I encounter a suspicious person, a potential threat and heighten my awareness but maintain identical posture, steering clear of them.

- The threat changes course and seems to be coming towards me. I continue to deviate, becoming increasingly aware of the options in my environment, taking stock of my options but maintaining identical structure. My *"spider senses"* are definitely tingling.

- The threat continues to approach and is within 10 feet of me. I intentionally but casually adjust, bringing a hand up to look at my watch, to subtly define my space and discourage him from continuing to get too close, while also bringing a potential weapon

closer to bear. I hope that he is timid and that subconsciously he will respond and steer away.

- He does not. The threat suddenly lunges and races towards me. Since my hand is already elevated and my spine is loaded with visualization and ready intent, it shoots out almost automatically like a piston, palm smashing him in the face with enough force to temporarily change his zip code. I drive into him with my weight, shielding my head and immediately flexing my legs, changing levels to both escape the bulk of his impact and close to a clinch, to give my brain a second to orient itself.

- In the clinch, I keep my head tucked against his shoulder to protect my face, slipping the crown of my head under his jaw as I control his arms. I can hear him groan and his molars crunch and grind as he strains with his neck to unhook his jaw from my head spear and release the pressure to his jaw and neck. While he's distracted, I deliver a few quick knees into his thigh and groin to shake the etch-a-sketch of his circuitry a little more then steer him to the ground, hitting him with the biggest thing I have on me—the planet.

- I pop my spine back open as I drive my knee into him. This stacks the fullest possible amount of my weight onto a single point on his ribs and makes him wheeze and moan as he continues to struggle. My groin is twisted away to protect it from strikes and my head is stacked neatly on top of my shoulders to keep it out of reach. I shout out a series of strong simple verbal commands, ordering him to stop as I bounce a few short knee hits into him to reinforce my will.

- He does not show signs of acquiescing so I bounce off his ribs with my knee one more time and through the elasticity of my structure and the assistance of his ribs cage launch myself into a final stomp to the head to keep him down before running to safety.

What I want you to take from this chronology is how obvious good structure should be. If you are like most people, you probably thought, *"duh, I know how to sit".* Maybe, some of us thought, *"I cross my legs"* or *"I do something a little differently"* but we know what *good posture* is and we know our bad habits. When we feel sore or out of alignment, we know how to correct our posture instinctively. We know how to walk without falling (at least most of the time). It's when we get into the domain of potential threats that most of us begin to lose confidence. By the end of this curriculum, I intend to clearly delineate how to change that.to change that.

Some Systema practitioners would argue that even allowing yourself to raise a hand or change your posture due to the mere presence of someone is a fear response. I not only disagree, I will show throughout the length of this handbook that **sufficient response time in some situations, regardless of how skilled you are, absolutely requires anticipation**. I will show that this anticipation must include preloading your physical structure and *can* include pre-emptively defining your space with natural gesture, behaviorally justifying these actions

We are against using stances that are static and unchanging impositions of postures.

We advocate adjusting our structure constantly and fluidly to protect ourselves and maximize our survival odds.

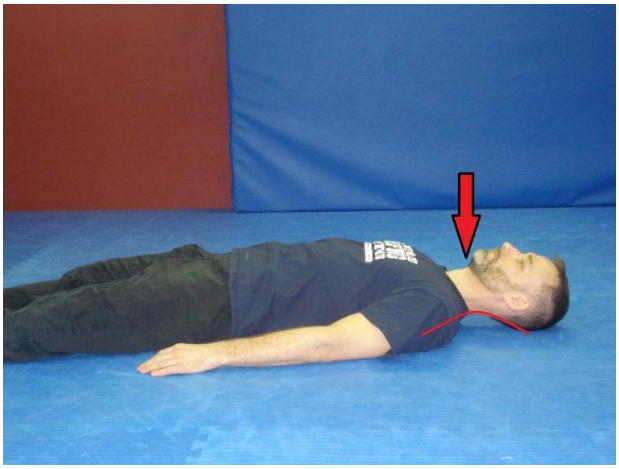
with psychological delivery mechanisms and definitely shielding and covering up when you are overwhelmed. Moreover, I will show that everyone, in any situation, can easily find themselves in a situation where they are overwhelmed and required to cover up. Many will scream *"stance"* as if I have violated a cardinal law of Systema. Let them scream. For me, a stance is a static and unchanging imposition of an unnatural posture. By comparison, **structure is always adapting to the threat at hand** and that *must* sometimes include changing to anticipate the most probable threat in a plastic and fluid way. When someone charges and surprises you, your hands will instinctively come up. Whether by reflex or intention, structure must ensure our safety first and foremost. When I hear Systema practitioner argue: *"You shouldn't have clinched in that video clip"* or *"you shouldn't have allowed that attacker to enter your space". "What you should have done is keep a straight posture and just calmly move out of the way"*, I don't disagree that this would be preferable, I simply submit that it is not always probable in a real encounter. Ideally, I would have dropped my attacker with a Jedi mind blast and then converted his aggression into world peace by sprinkling powered unicorn horn on him, but that just isn't happening. Many Systema practitioners and martial artists in general, drink too much of the mystical Kool-Aid. They subscribe to the belief that the fantastically compliant slow motion demonstrations of their instructors are accurate glimpses at combat possibilities—they are simply so high-level that the practitioners themselves cannot replicate anything close to it. Again, I submit that these are **symmetrical, compliant training drills** designed to train and demonstrate ideal principles. There is nothing wrong with this work as a component of a greater combative truth, but that truth must include movement towards a messier, less compliant and more resistant asymmetrical training phase—what we term *pressure testing*. The bottom line is that when someone ambushes you with a barrage of hits, those who shield to survive the initial onslaught rather than slavishly adhering to some formalized ideal of the aesthetic of form, get to go home tonight and eat supper with all of their own teeth.

Structure is relative to its environment. It is dynamic and constantly in flux.

EX #1 – LAYING SPINAL CORRECTION:

Here are two very simple exercises that can be done to reinforce the correct alignment of the spine.

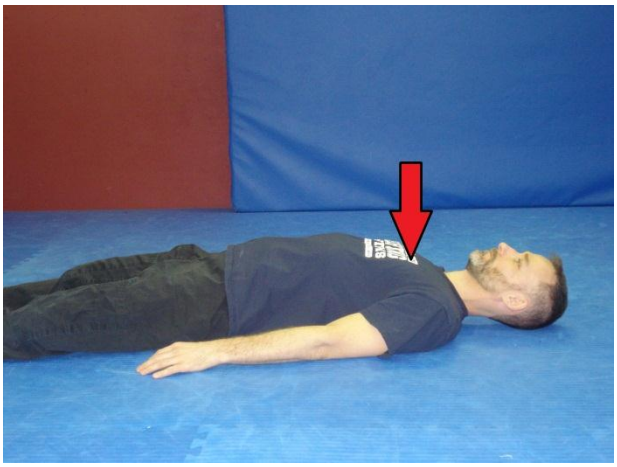
- The first involves simply laying on your back on the ground. Take 5-10 cleansing breaths to relax and to feel your body on the ground. I find it helpful to imagine that my back had been rolled in ink and to imagine whether or not I am imprinting the ground with a *"symmetrical"* image, adjusting and correcting myself to create the most balanced body imprint possible.



First, subtly tuck the chin to stretch the back of the neck and reduce the arch under the nape.

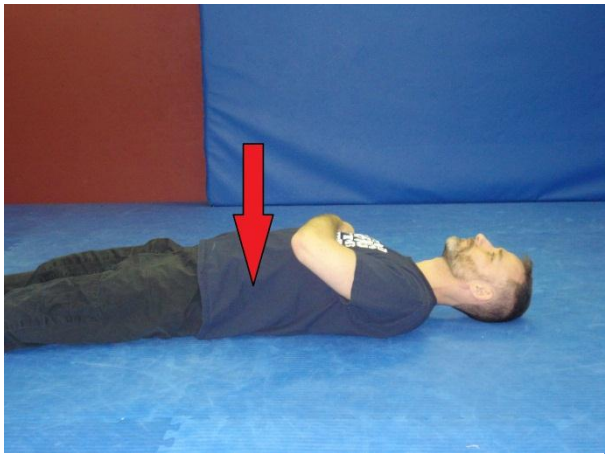
- Next, visualize the cervical arch under the nape of the neck honestly and without judgment. Feel how your head instinctively placed itself on the ground and imagine what shape of arch this is creating. Next, gently lower your chin towards your sternum while thinking of softly elongating the back line of your spine. The smallest and most subtle adjustment is preferable. Avoid adding any tension to the throat or sides of the neck. Certainly, there should be absolutely no change in the resistance felt in your airway. Often, the stretch in the back of the neck is so subtle it is almost invisible, only serving to enhance and invigorate the cervical arch and to bring awareness to it. Hold this comfortably for 5-10 breaths.

- Next, visualize the round of your shoulders (the thoracic arch). Feel if your shoulders are balanced. Is one jutting out more than the other? Do they feel like they are at the same level? Are your shoulders rounded or clenched together? Again, simply feel without judgment to see how you naturally greeted the ground today. Begin by contracting the shoulder blades together as if you were trying to squeeze a ball between them. Do this gradually and gently. This area can be particularly prone to cramping for some so respect your limits. Again, this is just to change your awareness and increase your sensitivity of your thoracic arch. You are not trying to forcefully correct your posture in one fell swoop. After 5-10 breaths, maintaining the moderate contraction, imagine rolling and sliding the shoulders up, back and down. Then, gently relax the contraction and see how you are able to pull the shoulder area of your back longer still, as if your spine were a string that you were gently stretching. Now, the round of your shoulders will be somewhat flatter yet comfortably so and without any artificial stress.



Next, roll the shoulders up, back and then together to flatten them out and release the contraction, stretching and lessening the round of the shoulders.

- Finally, visualize the arch of your lower back (the *lumbar curve*). Again, without judgment, feel how it is resting, feel the height of the arch and whether there is any tension inherent in your resting position. Stay there for 5-10 breaths. Now, gently



Please note the arm is elevated here only to illustrate the contact of the lower lumbar region with the ground.

begin to curl the tailbone up and towards the trunk, stretching the lumbar curve somewhat straighter. Always adjust the body in a natural way, without adding stress to the body. Again, make the most subtle and minute adjustments and simply feel the gentle stretch occurring in your lower back.

- Conclude by visualizing your body in profile. Imagine the *three* arches of the body (the nape, the shoulders and the lower back) and notice how they all naturally curve in opposing directions, in a delicate counter-balance; the nape curves inwards, the shoulders round outwards and the lower back arches inward again. Play with the elasticity in these curves gently, stretching and relaxing them and feel the health and elasticity that this safely brings to your body.

- When returning to a standing position, do so slowly. Always roll onto your side lazily first, resting your head on the bicep of your outstretched arm. Stay there for 5-10 breaths to allow your organs to adjust and to bring your blood pressure back up. Then comfortably sit-up and repeat a few breaths to adjust. Stand slowly and with structure and take a moment to feel the differences that have developed in your posture and structural awareness.

EX #2 – STANDING SPINAL CORRECTION:

The second variation of this exercise involves standing next to a wall. The wall will provide a similar type of feedback to the ground, but now, because the body is standing and bearing a greater load, the awareness will be quite different and more dynamic. There is a variation that is commonly taught in Ryabko Systema which I will compare here point-by-point, as I feel their method is actually quite counter-productive and dangerous to the body over the long term.

1. Begin by simply standing with your back against the wall. Seek to have **5** levels of contact with the fall:
    - Both heels
    - Your buttocks
    - Your lower back
    - Your shoulders and
    - The back of your head.

1. Take 5-10 relaxing breaths and simply observe your posture again without judgment.

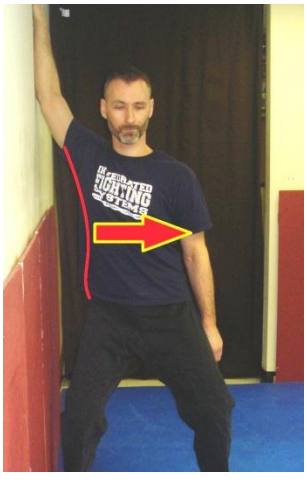
2. Next, slowly slide your body down the wall an inch or two. This is the first major distinction between our approach and The Ryabko method. In the Ryabko approach, students are commonly taught to lower themselves **as far as possible** while maintaining these points of contact. The exercise is generally taught as breathwork and is exceptionally grueling. The difficulty I have with this approach is that by lowering yourself to your maximum in this position, without permitting the hips to sway backwards to counter-balance naturally (since they are limited by the wall) you place excessive strain on the knees. We will discuss the role of knee flexion and of toe position relative to the knee in our treatment of the core exercises in the coming section. At this point, I will submit only that the purpose of this exercise is to align the spine and integrate breath work with postural awareness. Lowering a few inches is sufficient for both of these gains and far safer, placing only natural load on the knee. Simply lowering an inch or two, so that you add load to the muscles and connective tissue, but always keeping the centers of your knees balanced over the arches of your feet in the way we are structurally intended to bear weight is sufficient for the purpose of this drill. We will discuss more detailed considerations in our treatment of the squat.

3. **To go lower in our method, you must proportionately move the feet forward as you lower.** For example, gently walk the feet out 1 inch and lower 1 inch. Walk out 2 and lower 2. In order to safely bend the knees to a 90 degree angle, you must step the arches of your feet away from the wall to permit the total length of your femur. A 90-degree angle is generally sufficient for most people to get a deep conditioning. To continue working on load bearing flexibility, you may wish to work slowly going lower, perhaps all the way to the ground. To go lower than 90 degrees, there is no need to move the feet further. Once you have permitted the thighs to pass, your knees will be able to remain balanced over your arches.

4. To go lower, it is important however that you maintain your upper levels of body contact (everything except your heels). The heels must however maintain contact with the flow. People will generally have difficulty keeping their heels on the floor when squatting. Use the support of the wall to assist your body in maintaining this structure so that you can safely condition this flexibility.

5. A second variation of this work in the Ryabko method involves standing with the side of your body against the wall. The arm nearest the wall is extended overhead for support and kept in line with the body. The goal of the arm in this case is to provide support for the body. The difficulty I have with this variation is that the elevated arm creates imbalance in the body, shifting the hips and shoulders out of natural alignment and placing excessive stress on them. Many students will even begin to sway inwards with the side of their torso.

   Instead, it is far safer to keep the arm comfortably hanging by the side of your body. Press the side of the near shoulder into the wall for balance and perform your squat. The lowered arm will not provide the same degree of adhesion provided by the Ryabko approach, but this is

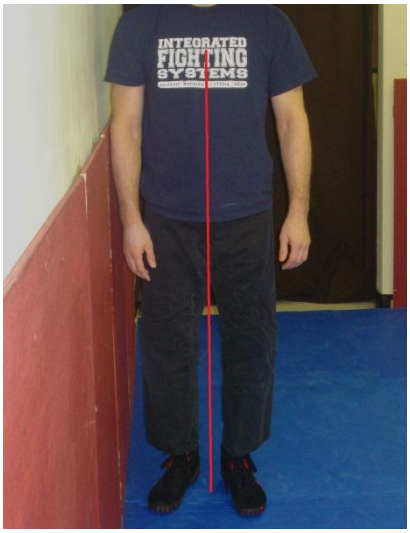


We do not prescribe elevating the arm in lateral wall squats as this needlessly deforms and stresses the trunk.

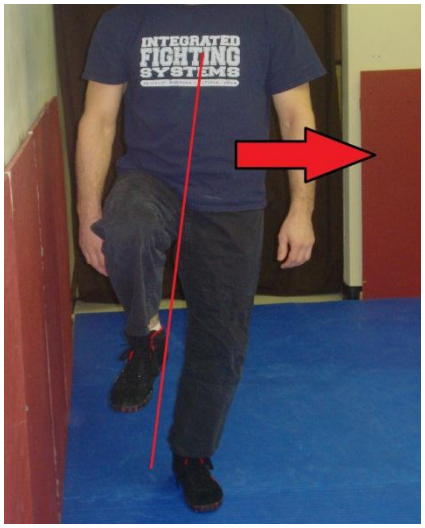
actually preferable. The lowered arm reinforces superior body alignment plus provides less stability, forcing the student to cultivate more independent balance and strength and reducing the risk of them forcing past their safe limits. The wall should be a gentle crutch, not a wheelchair.

Another interesting variation is to remain in this position, but now to keep an inch of space between your shoulder and the wall. Try to maintain this equidistant inch constantly as you lift either of your two knees and slowly and carefully extend a single thrust kick. You will quickly notice that it is impossible to perform this without naturally counter-balancing the body. In the words of Sonny Puzikas, we quickly see that balance is an illusion.

When performing the lateral wall squat, simply keep your arms down. This will still provide some degree of balance without deforming or stressing the torso.



For another interesting variation, try maintaining 1 inch between your shoulder and the wall as you raise either knee and extend a slow kick.



You will quickly see that the body must lean away from the raised leg in order to counter balance over your support leg.

6. The third variation used in the Ryabko method is with the front facing the wall. In the Ryabko method, the toes are kept either pointing directly forward or else angled outwards to a 45 degree rotation. This immediately places the knees in a poor alignment for deep squats and causes the knees to sway inward over the toes and arches.

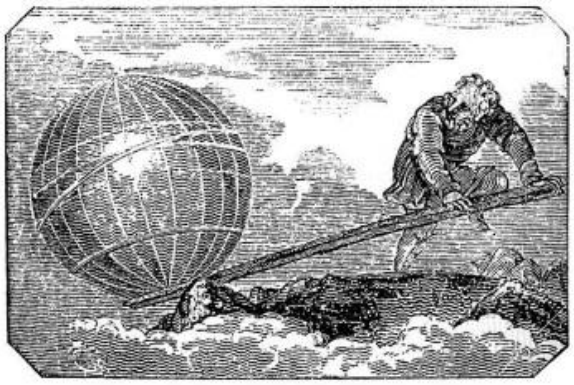
Instead, face the wall with your feet parallel and comfortably apart and your toes touching the wall. In this way, you will be able to safely lower yourself with your legs in correct alignment. The wall will provide effective reinforcement, first preventing you from leaning your head beyond the distance of your toes and then gradually, as you acclimatize, providing a more tangible indicator of the line of your toes,

so that you can condition your upper body increasingly away from it and towards a straighter back. Again, this is work is intended to integrate postural awareness with breath. It is sufficient to simply drop an inch or two to increase the load on the muscles without needlessly jeopardizing the knees.

THE BODY AS A BASIC MACHINE:

Throughout the remainder of this curriculum we will explore the various ways the body can be moved during combat. A key vocabulary that is employed in Kadochnikov Systema is the discussion of the body as a basic machine. During the Renaissance, scientists determined that there were 6 basic types of simple machines which can multiply power. When properly understood, we quickly see how viewing the various functions of our body as the work of simple machines provide a deeper appreciation and understanding of their basic movement potential and function.

1-LEVERS:



The first and most basic form of machine that is commonly referred to throughout the martial arts is the lever. In the immortal words of Archimedes, *give me a lever and a place to stand, and I can move the world*. Grappling arts like Jujitsu and Aikido typically refer to the leverage in throws and locks. Strikers often refer to the ideal angle and leverage of certain strikes. Leverage is an essential component of understanding our own structure and in breaking the structure of our opponents. Levers surround us in our daily lives, from scissors, pliers, boat oars, and car jacks. The lever must have the sufficient strength to endure the forces that will be placed on it and a fulcrum to provide it with the space to apply lift. The longer the lever, the more your force is multiplied.

An understanding of leverage is key in the application of most locks and strikes.

Martially speaking, an understanding of leverage reinforces the importance of structure. Obviously, a longer and stronger body is able to offer longer and stronger levers and therefore to apply more leverage. Therefore our ability to "extend" ourselves with strength and power is directly proportionate to the amount of strength we can exert on an attacker. The mobility and strength of our connective tissue, our structural awareness and our ability to find the best possible balance, available fulcrums and alignment in any given situation, and our intuitive understanding and familiarity of leverage and its results are all key components here. We will discuss the role of leverage and the maximization of mechanical advantage deeply during our treatment of triangulation and breaking structure later on.

EX:

A classic example of using efficient leverage in Combat Systema can be seen in our treatment of escaping from a simple wrist grab. Many martial styles teach to rotate the more powerful radial bone (i.e. the thumb) towards the opening in the attacker's thumb and fingers and then to pull back towards this natural opening. The amount of leverage applied to this weaker point in the attacker's grip will usually permit escape. In cases of extremely persistent grabs, especially against 2-handed grabs, the defender is often advised to support their grabbed hand with their free hand and to pull back with both towards the opening between their attacker's thumb and fingers. Even in cases where the attacker's hand is relatively large enough for their thumb to overlap their fingers, we are reminded that this is still a natural opening and the weakest point in their grip.

Consider this dynamic snapshot from a women's self defense class. Notice how the defender is pulling away. There is no mechanical advantage gained by trying to pull her hand (the short portion of the lever).

While generally effective, this type of escape is a textbook example of inefficiency. If we assess this simple movement from the perspective of leverage, we quickly see that the point where the attacker grips your wrist is the fulcrum. The forearm and elbow of your seized arm is the long portion of your lever. The hand of your grabbed arm is the short portion or tip of your lever. By employing the technique described above you are effectively pulling up on the short portion of your lever rather than pushing down on the long portion of your lever. This is tantamount to:

- Digging your shovel blade into the earth, then squatting down, forsaking the length of its handle to pull the soil up by grabbing the sides of your shovel head, or;

- Putting an oar into the water, neglecting the handle of your oar entirely and grabbing each side of the oar blade to paddle, or;

- Holding a pair of scissors by the tips of the blade rather than by the handle when trying to cut, or;

- Putting a pry bar under a boulder and then crouching down and trying to pull up on the portion that is jammed under the boulder rather than trying to push down on the long handle provided at the opposite end.

I apologize for belabouring the point above but this begs reiteration and clarity because as ridiculously obvious as the above examples may seem, the moment we apply the same mechanics to a combative dynamic, the flinch response engages, ego invites over a few friends for pizza night and this seemingly simple dynamic erodes into a battle of bicep power. In fact, this muscular notion of ripping out of the hold is widely encouraged in a host of martial studies that I have practiced over the years. Furthermore it is presented under the guise of efficiency and because it does work to some degree, it quickly earns an air of

legitimacy and seems to support a basic principle of movement when in reality it is grossly inefficient and encourages grossly unintelligent employment of force against force with little to no mechanical advantage or intuitive understanding of leverage.

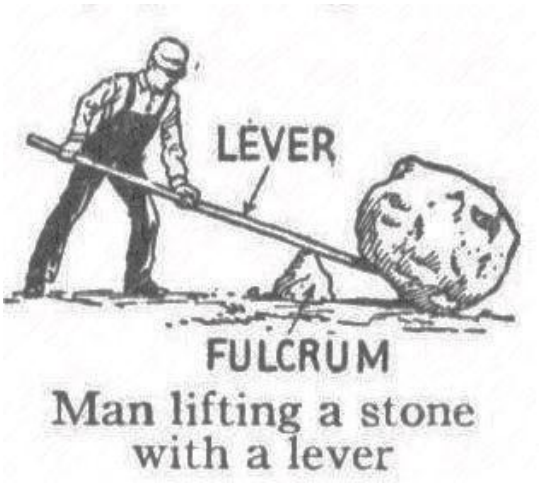
By comparison, consider the following succession of work. First, we will begin with an exaggerated isolation drill. Again, remember that this desire to *"rip out"* of a lock is instinctive and deeply rooted in our survival hardware. We naturally panic, contract and fight force with force. Rest assured that understanding inefficiency is not enough and that this tactic will likely continue to rear its ugly head over and over through your journey, requiring diligent effort to rewire this one reflex. Many people who have even only a few months of martial or self defense experience will also likely have some awareness of this concept or tactic and will also have to work against previous training—some of us may have decades to swim against like the tide. We must therefore proceed slowly and correctly if we are to rewire this ineffective habit.

Rather than resisting from the bicep, keep the wrist (fulcrum) stable and move yourself around it.

For the first phase of our work towards efficiency, have your partner grab you with one hand and squeeze as powerfully as they can. This should cause the fingers on your grabbed hand to wilt somewhat. Allow this to happen. Avoid any urge to fight this. Next, commit to the following limitation—no matter what movement you make, do not allow yourself to affect your partner's grab. This means that you can provide no *"density"* or no sense of resistance or support to their grab. Your grabbed hand should aspire to float within the grip. Your grabbed arm should be completely loose and relaxed. Slowly, study how you are able to move your body. It will seem almost as if you were slowly dancing with your partner. Step towards and away from them, twist and blade your body when necessary, explore the full degree of motion that you are permitted **within the confines of your partner's grip**. To use the analogy of a leash, accept that you are tethered by the wrist and try to never move in a way that brings awareness to the collar around your wrist or in a way that alerts your partner to how or where you are moving. This drill can be done with the *"attacker"* keeping their eyes closed or even both practitioners keeping their eyes closed to amplify this sensitivity.

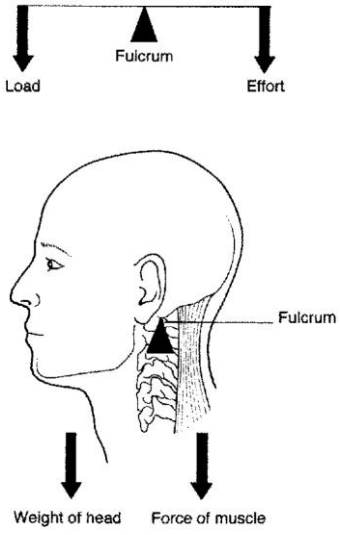
After some time has been dedicated to this, evolve now to focusing on the movement of your elbow rather than your body. Your body will still move but **it should be led by the elbow**. Think of your attacker's grip and the area where he or she is contacting your wrist as being fixed in place. See how you are able to gently and slowly move your elbow around that fulcrum. A very informative albeit exaggerated way to work initially is to focus on dropping the elbow since this benefits from the assistance of gravity. The more exaggerated you can make this work the better, since this will help encourage an attitude of play and will keep the work distanced from a sense of direct combative application. **Often, the more ridiculously exaggerated the drill, the less incentive there is for the ego to get involved.** If we jump to drills that have direct and obvious combative applications too early, we facilitate the involvement of competitiveness and the desire to win and often block our opportunity to explore and learn about our body, our psyche and movement as a greater whole. Instead, tell your students to keep their grabbed wrist as stationary as possible while trying to drop their elbow below it. Encourage them to squat, even to sit or engage the

ground fully in order to achieve this end. It should seem as if the attacker is grabbing with enough force to make forearm juice drip from your hand and you are simply ignorant to this, casually laying down for a nap. When this is done with the correct *"casualness"* it is extremely difficult for the attacker to maintain their grab and extremely easy to escape with very little energy. This is a fantastic example of the exponential mechanical advantage provided by the fullest possible use of leverage.



This intuitive feeling of leverage must be deeply internalized. Come back to this drill or variations thereof often and stay there as long as is required. There is a lifetime of discovery in this one simple exercise. As the movement becomes more comfortable, have your students play with the direction of their elbow movement. Again, initially, dropping the elbow straight down will generally be easiest since it benefits from the assistance of gravity. Next play with moving the elbow laterally and diagonally. It can be helpfully to cautiously imagine slicing across with the elbow and targeting the attacker's bicep, forearm or face with your elbow tip. As the movement becomes more comfortable, encourage the students to explore a sense of loading and unloading the elbow, raising it slightly higher than its desired target and dropping it down into the target to benefit from gravity. Although the path will be less direct, the mechanical advantage gained from employing gravity is well worth it.

Ultimately, once the student has exaggerated this exploration of moving the long portion of their arm lever, they can shorten and compress the work, dropping their body slightly with the full resolve to go to the ground but then stopping it an inch later, much like an old elevator that brakes slightly lower than the intended floor. Students can then also play with selective contraction, offering a false sense of resistance and density to bait their aggressor and then releasing it to help unbalance the attacker. We will discuss all of these concepts later on in our treatment of breaking structure.



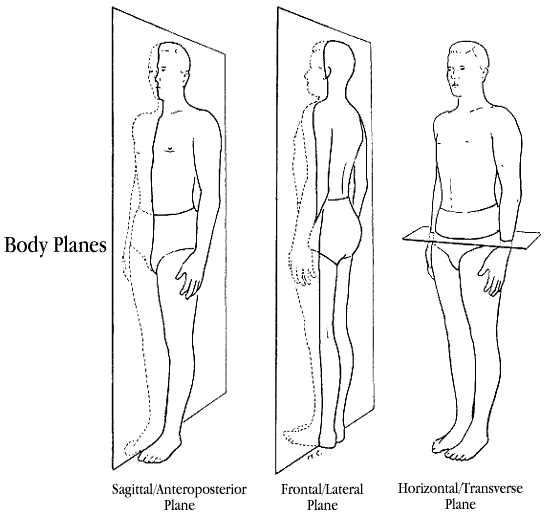
As noted earlier in our treatment of structure, there are levers throughout our body. Our neck is a very relevant and ever-present lever. Slavish adherence to the *"ideal"* of what correct form can cause students to unnaturally elongate their necks, in effect exposing the brain that rests on the end of it to greater multiplications of force from impacts received. When we discussed the need for modulating postural structure to best suit our environment we immediately saw the difference between concerns for ideology which are arbitrary and subjective and with efficiency, which are scientifically measurable. When our neck is longer, less force is required to apply significant force to our brain. Our eyes and ears and their role in maintaining balance through horizon line reference and vestibular fluids can be easily manipulated, delaying our responses and ability to function

effectively. The fulcrum at the base of our skull leaves the constant weight of our head vulnerable to attack from hits and locks. Therefore, *"shortening"* the neck by retracting it slightly and supporting it by temporarily raising your shoulders to survive the force at hand is the most efficient and highest probability response—period.

2-SCREWS:

The next simple machine which deeply influences our function in Combat Systema is the screw. In mechanical terms, screws transfer linear force into spiral path (torque) around a shaft. Biomechanically speaking, screwing the limbs of the body achieves the same end. The terms *"2"* and *"3-dimensional"* movement are frequently used in the Russian martial arts. These refer to the three movement planes of the body:

1. The *medial (a.k.a. the sagittal),*
2. And the *frontal* (*a.k.a. the lateral*)
3. The *horizontal (a.k.a. the transverse)*



Together, these three planes encompass all possible movement variations. We will discuss these planes in extensive detail and describe the various types of movement possible within and defining each plane during our detail of health work in the coming section. For our understanding here, it suffices to know that linear movement which operates using joint movement from only one of these planes is said to be *"flat"* or *"2-dimensional"*. Movement that uses a succession of movements from multiple planes is said to be *"3-dimensional"*. 3-dimensional movement is able to generate more power within a smaller space by accumulating the successive capacities of multiple joints. It places less stress on any one joint, thereby decreasing the risk of injury to the body in day-to-day function as we will see shortly. Combatively, it also means the movement is harder to *"read"* and intercept. Three dimensional movement is often referred to as *"wave movement",* since the successive synergy of joints can create a wavelike undulation in the body movement, as the joints fire one after the other like a chain of dominos falling.

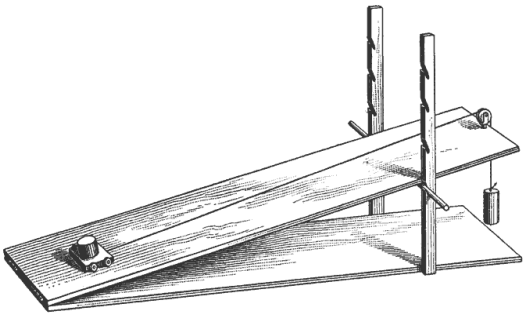
As 3-dimensional screwing actions are used throughout the body an outward appearance of fluctuating like a wave emerges.

There are a number of examples of *"screwing"* actions that are commonly employed in basic Combat Systema movement. The *"Arm Screw"* illustrated below, is a basic mechanical exercise used to illustrate the superior power and efficiency of using a succession of joints to perform a simple push-up (in this case, a flexion of the wrist leads to the rotation of the forearm and then into the flexion of the elbow). Rather

Here, we see a conventional push-up replaced by an ***"arm screw"*** wherein the arm is rotated from the palm, over the ulnar edge and onto the back of the forearm.

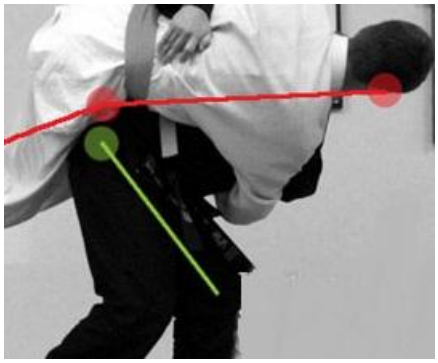
than dropping directly to the ground, the force of the descent is in effect *"wound"* around the forearm like water spiralling down a drain (to my Australian colleagues incidentally, this does not mean that you need to always perform this in the reverse sense of North Hemisphere practitioners). The identical motion is used to deflect and absorb impacts when falling to the ground in order to protect the fingers, wrist and elbows. It is used when deflecting strikes or working against knife attacks to dissipate power more effectively and offer our more durable outer forearm to the threat. We even use it when creating frames when grappling to generate greater power in much less space, etc. Leg transitions when moving on the ground, from Hunter to Cossack Squats are also good examples of 3-dimensional screwing actions with the legs.

3-RAMP (INCLINED SLOPE):



The third type of simple machine is the inclined slope or ramp. The ramp provides mechanical advantage by moving a given weight slowly up a gradual incline rather than directly up a sheer surface. The total amount of energy required to move a weight is therefore lessened (with variances given the degree of friction). A greater amount of weight is therefore able to be moved with less energy by moving it over a greater distance more gradually.

Combatively, the body can use the mechanics of ramps in numerous ways. Consider the simple example of throwing another human being. Often, throws are regarded only in terms of leverage. For example, the thrower lowers their hips/center lower than that of their subject, making the upper body into a long lever that can easily be pulled over the fulcrum of their hips. In some variations, the upper body of the thrower is titled completely out of the trajectory of their opponent, allowing them to fall cleanly to the ground, such as a basic hip throw. In shoulder throws however, the initial leverage only serves to provide the lift to load the subject onto the thrower's body. The throw then essentially drags the subject over the ramp of their shoulder.



In most throws, the body serves as a ramp.

All of the screwing actions previously described are also examples of inclined slopes simply wrapped around a shaft or circular path. Similarly, deflections and deviations employ the principle of a ramp, obeying gentle slopes rather than sheer precipices and obstructions, to encourage the incoming force of the attacker efficiently along the path of least resistance. We will discuss this later in our treatment of *"framing"* and *"tracing"*. Ramps are tightly connected to our next simple machine, wedges.

4- WEDGE:

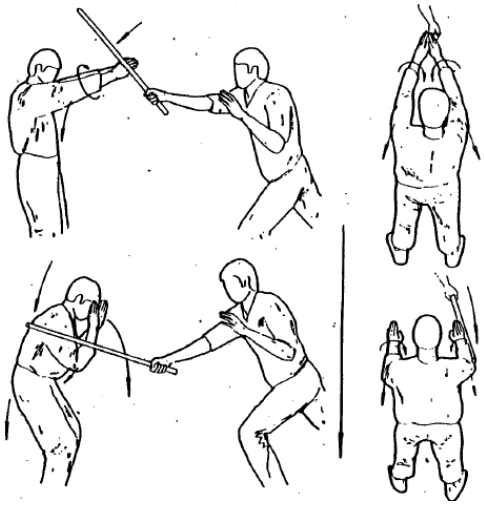
A wedge maximizes the same natural principles as an inclined slope. Instead of multiplying force by allowing an object to be dragged or pushed up it like a ramp however, a wedge is actively inserted into resistance. Through the same structure as a ramp (narrower at one end and widening at the other) it gradually forces resistance apart. Simple wedges are commonly used to split tree trunks and hold open doors.

Combatively speaking wedges and ramps are tightly connected and mechanically distinguished only by whether they are *active* or *latent*. Take the following combative example:

Blocking force with force is never efficient and gives the user no mechanical advantage.

- An attacker rushes towards you and swings a stick. You flinch, instinctively blocking overhead with a forearm that is virtually perpendicular to the force and you collide with the force of the incoming stick head-on. The likelihood is that your will leave with a broken forearm and that the stick will sail cleanly through your defenses and strike your head and collar bone. This would be a completely inefficient response that disregards the basic lessons of the simple machines we have seen.

- The same attacker rushes towards you swinging their stick. This time **you advance** to greet them, compressing the distance between you somewhat and disrupting their sense of precision and timing. You *"functionalize"* your flinch response by reaching up towards the stick, but rather than indulging the fear response and trying to *"stop"* the incoming force with force, you greet it with a sloped forearm, that guides the incoming swing to the diagonal as you slip deftly in the opposite direction. The stick meets minimal resistance and is deflected without serious injury to your body. This is an example of *"framing"* which we will discuss later. This would also be a classic example of a ramp in action.



NOTE: You could functionalize the flinch further, initially greeting the stick with the outside of your forearm and rotate the thumb outward a quarter rotation, to add further deflection and effect through an arm screw.

In some cases it can even be possible to avoid contact entirely. The identical movement simply timed a fraction of a second earlier can sometimes bait your attacker and draw them into

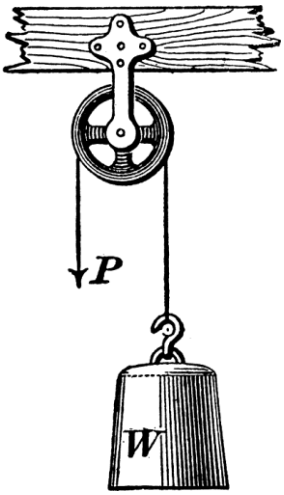
committing to the strike while assisting your body's natural sense of proprioception and balance. We will discuss this in greater detail in our treatment of *"tracing"* later on.

- The same attacker is just preparing to rush towards you. Before they are able to complete their first step, you bolt forward with the same functionalized flinch response, jamming their stick in place where they are holding it by wedging your forearm up alongside it. You do not collide with the stick but rather use your forearm to slide up alongside it by keeping your arm on a diagonal. You employ the same mechanical shape, form and angle in your arm as you would when ramping and deflecting, but do so before your attacker is able to generate any relevant force. This would be an example of wedge in application.

- To summarize, a perpendicular action *"blocks"* force with force and is inefficient and to be avoided. A diagonal arm structure is more efficient and allows force to be dissipated. When the structure is used in response to the strike it serves as a *ramp*. When the structure is used a fraction of a second earlier, it can be used as a ramp that does not contact but only baits and distracts (tracing). When used a fraction of second earlier still, it can be used to jam and pre-empt the attack entirely which would be an example of a *wedge*. Naturally, all of these responses are dependent on availability due to circumstance, distance, timing and capacity.

Wedges are also commonly used during grappling scenarios since the tighter space necessitate the most efficient use and multiplication of your power. Consider stand-up grappling. Often, we dig the combined tips of our fingers into a small opening under our attacker's chin or jaw, under their arm pit or between their arm and our body in order to gradually snake the remainder of our arm in. This is a very literal and obvious example of a wedge. In ground fighting, knees are often wedged between an attacker's legs to pry open and pass their guard. When mounted, elbows are often wedged between your own body and that of your attacker to create distance and frames. Often these wedging actions are further multiplied by the addition of a screwing action.

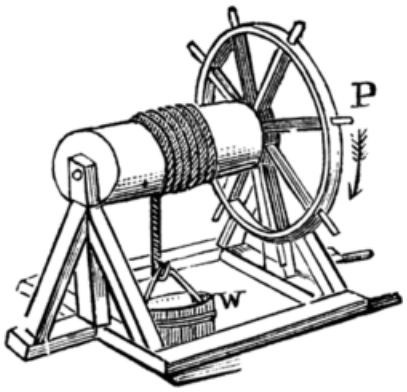
5-PULLEY:



The mechanics of a pulley are somewhat more subtle. A pulley multiplies power by diverting the line of force around a wheel, like a screw, diverting the line of force around a circular path to create circular force (torque). The muscles of the body are often referred to as pulleys but this is not entirely correct, since the muscles are generally acting along direct paths of attachment. It is more correct to say that muscles in the body demonstrate the principle of leverage than pulleys.

A more accurate example of a pulley could be found perhaps in grappling. Imagine grabbing a solid hold of your attacker's lapels and turning your back to them in preparation to throw them over your shoulder. As discussed earlier, leverage is at play here since you are generally seeking to get your center lower than theirs (which acts as a fulcrum). As we also noted, in the case of a hip throw, your upper body is largely leaned out of the way, to simply allow your attacker to fall over your hip, but in the case of a shoulder throw, the mechanics of a ramp are also at play since the attacker is being pulled gradually over the slope of your back rather straight up the sheer surface of a perfectly vertical back. How they are pulled depends largely on the nature of the grip however. In the case of a *"naked"* grab, for example by the wrist and perhaps using the bicep to cuff the attacker's elbow, there is the additional leverage and perhaps motivation of pain working against the elbow joint. In the case of cloth grabs however as hinted to above, we begin to see something more directly akin to a pulley. The fabric of the attacker's clothing can literally be dragged and draped like the cable of a pulley over your shoulder (which acts like the wheel).

6-WHEEL AND AXLE:



The last of the 6 classic simple machines is the wheel and the axle. The wheel is often touted as one of the greatest innovations in human history next to the discovery of fire and invention of the printing press. It has played an enormous role in the technological growth of our species. Ironically, it is perhaps the least relevant to our combative concerns here and arguably its relevance is somewhat strained.

The most direct example of the mechanics of a wheel and axle at play in my opinion can be found in the domain of stand-up grappling. In Combat Systema, we commonly refer to the three manners in which an opponent can be manipulated:

1. **They can be rotated around their own center:** For example, I push on one shoulder while pulling on another. This twists the attacker around their own axis without affecting your orientation. You in effect rotate their shoulders like a wheel around an axle. This is also an example of screwing.

2. **They can be rotated around your center:** For example, you grab them by the nape of the neck and step back with your rear leg, pivoting on your rear leg. The attacker is flung in a much larger circle around your center without being affected around their own center. Now, they are in effect the wheel and you are the axle.

3. **They can be rotated around both your center and their own:** For example, we combine both of the above examples. I grab my attacker by the chin and shoulder respectively, pushing on one and pulling on the other as I step back and steer them around me. The attacker spirals around their own center while twisting around mine. They are in effect acting like a wheel within a wheel, a spinning planet orbiting a sun.

In the end, while the directness of the applications of some of the simple machines may be somewhat forced, what has always been significantly more relevant for me is the interconnectedness of these simple machines. The mechanics of the ramp are tightly akin to that of a wedge and distinguished largely by being either active or latent, of being actively used or else acted upon. The screw is simply a modified ramp twisting on a spiral axis. The wheel is similarly so. In exactly the same way, the mechanics of combat, of structure and control, are initially specific, almost foreign in the degree that they are excessively cognitively, but with very little work, they transcend much of these distinctions and merge in a greater intuitive understanding of movement and mechanics. What is most important at the base of this understanding is that in understanding the universal mechanics we mature past the infancy and dependency of memorizing techniques towards a martial adulthood where the greater whole is understood and the individual is empowered to interpret and create.

PILLAR 3-RELAXATION:

"Only a strong body can afford to be relaxed and capable of unrestricted movement in a fight, enjoying health, joy and longevity in life."

—Sonny Puzikas—

Human defensive reflexes are the product of hundreds of thousands of generations of trial and error. What served the majority of our ancestors in the majority of situations against the most common forms of threats, were reinforced and promoted through the breeding of survivors. Those reflexes that failed were quickly extinguished along with those who carried them. This remaining distillation of *high-probability* responses exists as a **safety net** in the wiring of our brains and nervous systems. They are a biological insurance policy that

is ready to over-ride conscious thought when we are surprised or over-whelmed. The difficulty with these reflexes is that **2** major shifts have occurred in recent human history:

1. Within the past *10,000 years*, massive changes in social structure, communication and technology have allowed humans to shift from small groups of largely nomadic hunters to large sedentary populations supported increasingly by advances in farming, sharing of resources, and trade. The once prominent risks of the hunt have been replaced by the various dangers associated with urban pressure and **man's greatest predator has become his own self**.

2. During this same period, rapid **advancements in weapon technology** have exponentially enabled humans to kill one another, supplanting their inept natural arsenal of clawless, fangless frames with the devastating capacity to kill whole civilizations from a distance. Some argue that this has allowed humans to bypass genetically hardwired inhibitions against killing their own species. Others refute the existence of inhibitions as we will discuss in great detail in our treatment of *Combat Psychology* and state that weaponry simply facilitated taking action on existing instincts and reinforced man's status as its own greatest predator.

Given this modern reality, we must accept that we are in a period of immense transition. In it, our ancient survival reflexes are often outdated, ill-suited and often more harmful than beneficial. As such, they must be consciously re-assessed and re-worked if they are to serve us. **Emphasis must be shifted to maximizing the power of our greatest weapons—*our brains*.** Most would widely accept that relaxed, rational, clarity serves us best. We would not prefer a flinchy surgeon operating on us or a calm and rational one, an anxious airline pilot at the helm of our vacation flight rather than a seasoned veteran or even a spastic barber working on our heads of hair over a tranquil one. This much is obvious to us all. Why then would be any different when it comes to the very life-and-death issue of protecting ourselves against the risk of attack. Why would anyone want a flinchy, emotional, excited inner ape responsible for body guarding their well-being?

Just because we are prone to swinging like a gorilla in a fist fight, doesn't substantiate its efficiency. A medical student might initially be inclined to vomit and faint at the sight of blood. If our *"reflexes"* and *"instincts"* were always right, we would be training hoards of surgeons to reinforce and repeat this tendency and have hospital corridors awash with nauseous spew, but obviously we don't do this. Deep sea divers can often panic, rip off their breathing apparatuses and inhale deeply during their first experiences with extreme depths. Naturally, trainers address this reflex for what it is—fear-driven suicide—and as such they consciously train practitioners to expect it, to cope with it and to survive it. Some

This Combat Systema grappling drill teaches selective contraction by having the bottom student provide solid footing and handholds for their partner through intense contraction, while maintaining the ability to slowly move (selective relaxation).

soldiers panic initially and nervously squeeze their clip empty in an instant in what is often termed the "*spray and pray*" response. Through slow and mindful training, they are taught trigger control, target acquisition, and how to maintain awareness of their remaining ammo. Wrestling students initially squeeze indiscriminately with all of their body, quickly running out of energy. With the familiarity that comes from slow, focused drilling and sparring, they learn over time to efficiently isolate the necessary muscle groups to better conserve their energy.

Relaxation in combat is not a fairy tale or naïve ideal. It is a provable, achievable, preferable option that we see exhibited in champion athletes and professionals from all walks of life when they enter their zone of optimal performance. We will provide a detailed treatment of this in *Combat Psychology*.

PILLAR 4-CONTINOUS MOVEMENT:

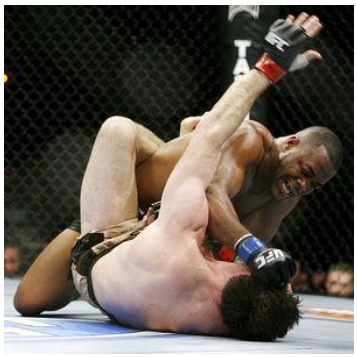
When the preceding 3 pillars are present, the 4th element is possible (though not guaranteed). By maintaining breath and structure, practitioners place themselves in a more relaxed state. This results in what we term *"natural"* movement. For us, natural movement does not imply simply any movement that you reflexively perform. Our fear reflexes are instinctive, but they are not what we imply when we refer to natural movement. Quite contrarily, natural movement is **any action which is free of the limiting influence of fear**. When we are free of fear, we are confident pilots of our own bodily structure and systems and we move the way we intend to move.

"Natural movement is any action which is free of the limiting influence of fear."

A point that begs distinction here is the difference between constructive and excessive *fear*. Inefficient fear, is anxious, causing us excessive worry and stress before the event, negatively affecting our bodies. This type of fear limits, is counter-productive and leads often to despair and a sense of being over-whelmed. A healthy, respectful fear by comparison confidently and productively anticipates the potential of a threat. It leads us to take pre-emptive actions to better prepare for the challenge ahead.

- Casually modifying your gestures to bring an arm up and into justified play between you and a stranger who is encroaching you is intelligent preparation. Freezing rigidly and extending your arms in abject terror towards them is counter-productive.

- Shielding your head against a barrage of punches is common sense. Reaching wildly for those same punches is inefficient, leaving your head and body open to impact and your hands and fingers vulnerable to injury.



Compare the difference between effective shielding versus wildly flailing against the same attack.

- Moving the body proportionate to the depth of a knife swing is an effective counter-measure. Blindly running straight backwards at the sight of a blade is likely to make you collide with an unseen object, wall, flight of stairs or spill out into the street. Moreover, it provides limited temporary protection since your attacker will generally always be able to run forward faster than you can run backwards.

The body is never truly at rest. Even standing still requires a myriad of contractions just to minimize the various shifting and adjusting that occurs in the body. Remember the exercise in the previous section where we stood on one leg near the wall. We saw that it is impossible to stand without constantly moving to counter-balance our weight. In a conflict, every threat towards the body will affect the body to even greater extremes, whether through anticipation or actual contact. It will either motivate or discourage the degree of movement but there will be movement nonetheless. By responding authentically to threats, Combat Systema students learn to **prioritize evasion**, learning to move **proportionately** to the threat, moving as a whole when possible, and moving only the threatened part when necessary. From this stems its characteristic flow and adaptability that typically defines the practice.

CORE EXERCISES:

Every training session should begin with a warm-up that addresses the wholeness of the body. While the intensities and the elements can vary, based on the material at hand and the skill level or requirements of the participants, at their foundation, it is recommended that a basic series of fitness exercises be consistently incorporated which reinforce the guiding principles of our system.

These exercises can be seen as taking *three* principle forms:

1. The first component which should be regularly featured in warm-ups is **joint mobility** work (described in our treatment of health work). As we will see in our discussion there, every joint is actively explored along the three biomechanical planes of the body (*the medial, horizontal and frontal*). Simply put, if you stand in a square room, flatly facing a single wall, you can rotate and move every joint to create circles on each of the 6 surfaces of the room (the 4 walls, floor and ceiling). We will discuss this in a little bit.

Joint Mobility Training

2. The second key component is what we term the **Core Exercises**. Based heavily on the basic body exercises espoused by Ryabko Systema, the *Combat Systema* interpretation is somewhat more technically specific and the selection of exercises is expanded somewhat from the four basic variations shown in Ryabko Systema to include a larger degree of variation and a more complete total body workout as we will discuss.

Core Fitness Training

3. The final component are what we might term **specialty exercises**. These are any exercises which the instructor sees fit to include in the training which generally go over and above the basic foundation provided by the previous two components. They are generally more specific and target the body parts and mechanics that will be required in the coming session. A wide variety of specialty exercises will be sampled throughout the curriculum.

Specialty Exercises

The core exercises are in my opinion are one of the greatest treasures in Systema. They provide a perfect framework for cultivating the essential breathwork, they reinforce

correct structural exploration and the transformative capacities therein and they bring the student towards combative preparedness. The exercises commonly used are:

1. **The push-up**
2. **The squat**
3. **The straight back sit-up** and
4. **The leg raise**

Airplane

I also incorporate the **airplane** (balancing on the abdomen with the legs and arms off of the ground) as an essential fifth exercise, often using it as a bridge between the existing four since the above-mentioned 4 exercises indirectly work but fail to directly target the muscles of the back. The airplane actives the lower back, shoulder blades and hamstrings, providing a natural balance to the sit-up. It also provides a unique compliment for breath work. Whereas the extreme leg lift offers postural breath impingent (your gut is compressed by your legs) in a position of relative relaxation, the airplane offers external compression (provided by the ground) while requiring muscular contraction in the back. Of the five exercises it is the easiest to teach sufficiency and fullness in. Moreover, given the general weakness of the back of the average practitioner (as evidenced in leaning during the squat and arched backs during the push-up) the airplane targets an essential and too often over-looked pillar of basic structure.

Secondly, the *Combat Systema* perspective views the core exercises as existing on a continuum with the *purest* and *most physically demanding* variation of the work existing at one end of the spectrum, and with the laziest *or most efficient* interpretations of the work as being seen as existing on the opposite end of the spectrum. The most demanding work is generally considered valid for health and conditioning purposes. The more efficient and low energy variation are considered to be closer to actual **combative applications**. All of the intermediate work in between is regarded as a study in body intelligence that leads towards greater efficiency.

Too often in the West, we accept the notion of *compartmentalizing* our workouts. Personal trainers around the world promote the idea of working body parts (chest, legs and back on Monday, Wednesday and Friday and legs and abs on Tuesdays and Thursdays, etc.). The difficulty with this approach is that **the body is directed away from balance, rather than towards it**. Naturally, if we work only select parts of the body, there is a higher likelihood that we will imbalance the body with targeted soreness, that we will destabilize it during the workout by drawing all of the blood pressure to select areas and ultimately create targeted soreness that will cause the remainder of the body to compensate for the areas that have been worked. This type of work leads away from body unity.

The Systema core exercises seek to give a total body warm-up, addressing the major muscle groups in

succession to awaken the body and teach it to operate more efficiently. **Range of motion** and **fluid grace** along with targeted contraction and correct breath use are essential components of the warm-up.

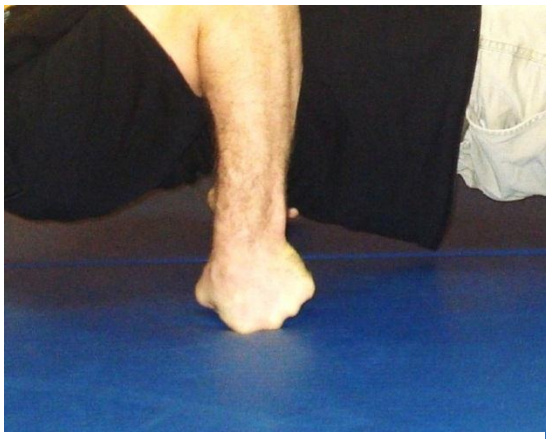
CORE EXERCISE #1 –THE PUSH-UP:

The purpose of the Systema push-up is:

- To **condition** the upper body
- To reinforce correct **striking mechanics**
- To study how these motions of the arm create supporting tensions in the body and to learn how to **resolve** them (i.e. in the shoulders, the back, the legs)
- To **integrate correct breathing** with these motions

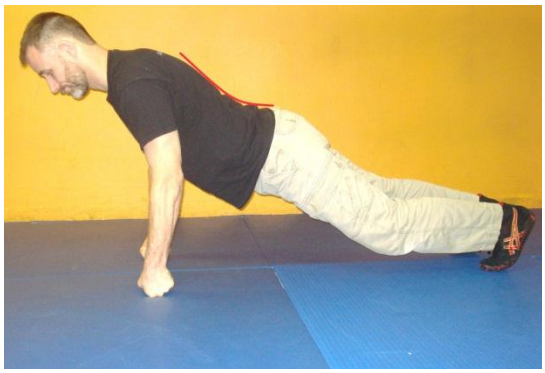
The Systema push-up can be performed with the legs apart, together or crossed (crossed legs are the most difficult to balance and also foster asymmetry, therefore care should be taken not to promote this position prematurely, excessively, or when the objective of the work is relaxation or balancing). The push-up can be performed either on the fists or palms. If performing the work on the fists, it is important to advocate **correct fist placement** as if punching. I am a strong advocate of using the first two knuckles. Having extensive experience in both traditions, I am well aware that the arguments for each are strong and that familiarity and preference, depending on your tradition, may color your ideals here. I encourage you only to consider the statistical evidence: the smaller knuckle bones are far more likely to break than the larger. There is extensive evidence from emergency room statistics that this is the case. Naturally, comfort and familiarity count for a lot. If you are a three knuckle puncher, make the arguments clear to your students and at the very least explain the existence of the 2 surfaces of the fist. Be certain that they choose one. Punches must be confident and we only have so much time to work them. The notion that all knuckles are equally good, and that intuition will tell you how to hit, is measurably untrue. **Skills confidence is best acquired through focusing on one surface, at least initially.** We will discuss this in greater detail during our treatment of striking.

When performing push-ups on the fists, do not allow your students to keep their thumbs open and pressed on the ground in order to lessen knuckle pain. While a natural reflex, this opening of the thumb changes and weakens the wrist tendons and fails to reinforce correct striking form. Simply put, if you are unable to maintain your full weight on your knuckles, continue to work on your palms. Work up slowly to the knuckles by training from your knees, or standing and leaning against a wall with your knuckles. You may also place a softer surface like a pillow under your fists. Respect your limits.



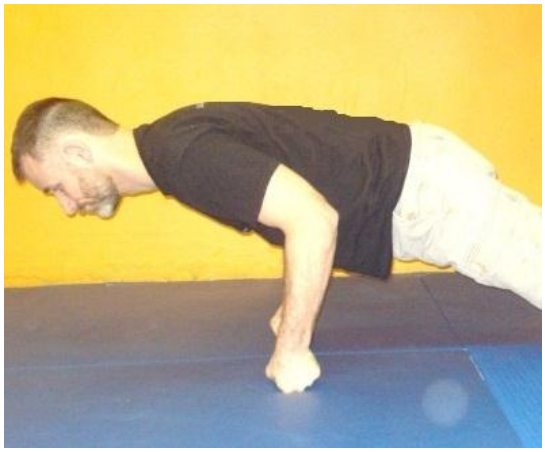
The first is comprised of 2 potential striking surfaces. Choose one.

In the case of open hands, care should be taken to ensure that the wrists are not bent to a 90 degree angle. Rather, some degree of elasticity should be maintained, with the elbows being kept bent and elastic and **behind** the palms heel rather than stacked directly over them. This will put far less strain on the wrist joint and require a more equal sharing of the load through the rest of the arm and back.



Avoid permitting the lower back to sag. This places excessive stress on the spine.

When performing the push-up, many students will indulge weaknesses in their back. Continually remind them to keep the tail bone slightly curled underneath, the body center/navel gently tugging up towards the spine and to maintain some degree of contraction (although lesser than the navel) in the solar plexus. This will help ensure that the core is engaged and the back is supported. The push-up, like all of the core exercises, is fundamentally a breathing and structure exercise. Respect the basic principles, particularly, inhaling through the nose and out through the mouth, **sufficiency**—ensuring that you do not run out of breath or strain during an action, and **leading**, beginning 10-15% of each breath phase before any targeted movement, particularly during slower repetitions. Independence is less important, and initially, it will be easiest generally for students to inhale on their way down and exhale on their way up.



Instead, keep the abs comfortably engaged and the lower back supported.

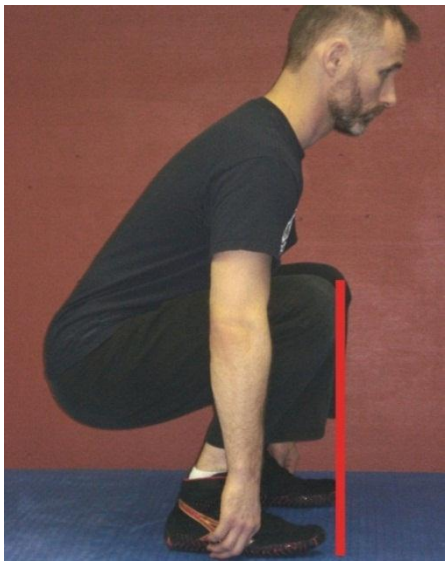
CORE EXERCISE # 2—THE SQUAT:

The purpose of the Systema squat is:

- To **condition** the legs
- To understand our capacity to operate on **different levels and heights**
- To learn how to **compensate** and **counter-balance** for these changes as efficiently as possible, with minimal changes to our posture, by releasing areas of excess tension (i.e. the lower back, the hip flexors, the toes, etc.)
- To improve our overall understanding of **balance** and **structure**
- To integrate **correct breathing** with these motions

If we were to describe the ideal Combat Systema squat, we would be looking for **5** components:

1. The heels would remain in **constant and solid contact** with the earth
2. The feet would remain **parallel** to one another
3. The knees would remain in line with or **behind** the toes
4. The back would remain **straight** and as upright as possible
5. The arms would remain **completely relaxed**



In an ideal Combat Systema squat, the feet are parallel, the heels are on the ground, the knees are in line with the toes, the back is straight and the arms are relaxed.

This is only an ideal. It may be something to strive towards for some and it may be realistically unachievable for others. When performing the Combat Systema squat, what matters infinitely more is that you **respect your limits** in all things and find a manner to safely improve your awareness, health and conditioning. If we are to look at the components of the squat more specifically, we would begin by focusing on trying to keep the heels in solid contact with the ground. To perform the squat, begin with your feet comfortably apart (normally this will be roughly equivalent to the **width of your shoulders**, give or take an inch). In the beginning, simply allow students to assume a comfortable width and to begin squatting so that they can study what state their body is in. Unlike so-called *Hindu* squats (bethaks) which

Hindu Squats (a.k.a. Bethaks)

are widely used in many grappling arts (where the feet are roughly hip width and the practitioner rises up completely onto the balls of their feet) the Systema squat is performed with an emphasis on keeping the heels on the ground. The reason for this is that the purpose of the Combat Systema squat is **to reinforce natural body structure when standing and to study the effect that changing levels and heights has on the structure of the body**. Keeping the heels on the ground provides greater balance and stability. The student must learn what their comfortable capacity is (exactly how far down they are able to squat with the feet completely centered and fully contacting the ground). Some students will be able to squat completely. Others, through patient work will acquire this. Some will not and this is perfectly normal, natural and fine. Genetic predisposition, physical conditioning, age and most certainly pre-existing injuries, will greatly influence the capacity to squat fully to the ground with the heels in comfortable contact. Again, **always respect your limits.** Stop before you reach your maximum and reinforce a confident awareness of where your lowest possible full-footed squat is. This means you do not wait until your heels are skipping up and down nervously like a telegraph operator before admitting you are straining yourself. This is a study of personal capacity, not a competition or a race towards injury.

Training the squat flat-footed is often boasted to be safer than the Hindu squat or variations where the heels rise up. This is misinformed. There is nothing inherently dangerous in lifting the heels up when squatting. The Combat Systema squat advocates keeping the heels down as a means of reinforcing efficiency and awareness in our body, not as a question of safety. I personally continue to use the Hindu squat as well in my own personal conditioning**. One of the goals of the Combat Systema squat as stated is to understand our capacity to operate at different levels or heights.** Even if we were only able to perform a 6-inch range of motion in our squat, this is no reason for discouragement. A full, confident and familiar understanding of our capacities is actually a reason for increased joy and confidence, not discouragement. What matters is that we train to become *more* familiar with our bodies and we learn to exploit our strengths and find short-cuts and work-arounds for our weaknesses. We need to know that in regular function or combat, when we reach a point where our heels must lift, this is not a *"failure"* point. Quite contrarily, this is a transition point. By knowing where our transition point is (where our heels must begin to lift) and by reinforcing this, we deeply and intuitively learn when we must alter our movement strategy during regular motion. We know exactly how far down we can plunge in our squat, before needing to change our structure, lift our heel, perhaps extend a leg to counter-balance or even reach for the ground with an arm screw for absorbent support. **The better we know our capacities, the better able we are to maximize them and reach personal efficiency during combat and life in general.** Often times when I introduce an exercise to someone, there is a look of confusion on their face that stems largely from them not being sure if they are able to move their body in the same way. Once they explore the movement once or twice, they have the confidence and knowledge to confidently repeat the motion. The more they explore their bodies, the more complete their mental image of their own capacity becomes and

eventually, even though they may never have tried an exercise before, they are far better able to estimate their capacity based on their inherent knowledge of what their body can do.

Another point commonly boasted about the Russian flat-footed squat is that keeping the knees behind the toes is safer than allowing it to jut or *"exclude"* past the knees. In fact, this is a myth that is still widely worshipped in Western fitness circles and a large number of gyms. Although this precaution is likely well-intended (a high level of knee injuries result from improper squatting) the fear is misplaced and often insufficiently explained. The implication is that excessive flexion of the knee is dangerous. In reality the knee protrudes past the toes all the time in regular daily life. Consider the forward facing wall squat described in our treatment of breathing. By touching our toes against the wall and slowly squatting, we became acutely aware of how far forward we are required to lean in order to counter balance the squat and compensate for our physical limitations. At this point, I would like to also note that the wall in such a position serves to limit the flexion of the knee. In the previous exercise, the goal was spinal correction therefore a flexion of 2-3 inches was sufficient for our purposes there. If however our goal is the deepest possible squat to condition our ability to change heights, the same forward facing squat may be somewhat too limiting as many of us will require our knees to extend past the toes in order to get to our lowest potential. The wall therefore can be an interesting exercise to revisit if for no other reason to gauge our own unique requirements.

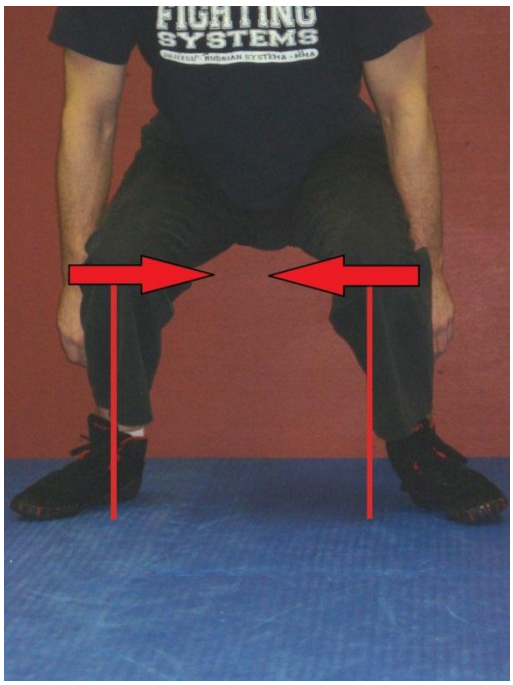
There is nothing inherently dangerous about flexing the knee past the toe if the knee is healthy and the movement is done correctly and with sensitivity. The design of the knee permits this movement and maintaining this capacity adds to long-term joint health.

Consider even just walking up a flight of stairs (note: if you plan on watching your knees and toes as you walk up stairs, be sure to hold on to the railing. As we will see in our discussion of *procedural* and *cognitive* actions, just actively thinking about something that we ordinarily do instinctively is enough to make us trip!). You will likely notice that your knees pass your toes on every step unless you are nursing a serious injury. This is part of the natural absorption and counter-balance process of the knee joint. One study specifically on restricting the forward exclusion of the knees during the barbell squat (not allowing the knees to go over the toes) actually found that the limitation created an increased anterior lean of the trunk and promoted an increased swaying of the knee and ankle inwards. As we will see shortly, **knee sway is far more hazardous than knee exclusion**. Keeping the knee behind the toes may well have reduced the amount of force being placed on the knee, but it did so at the expense of transferring *1070%* more torque to the hips and back![48] The fact is many cultures routinely employ extreme knee flexion. The Japanese sit for hours a day in a kneeling position (seiza) and culturally do not suffer from epidemic knee injuries further

[48] Fry

illustrating the fallacy of this fear.

Everyone is different. Some of us will be able to squat with the knees well behind the toes, but others will require some degree of extension beyond. Certainly, depending on the nature of the flexion, it may be impossible to prevent protrusion beyond this point. The danger is not in how far the knee bends, but rather in lacking sensitivity and understanding of our bodies and torqueing our hip or back (through ballistic rotations while squatting), or else in swaying the knee outwards or inwards excessively during the squat (both of which will tear the knee). Remember, **the knee is a hinge joint**. It is incapable of rotation. The illusion of knee rotations is created by the rotation of the femur in the hip socket. The knee itself is quite unstable. The femur sits in a grove on the tibia, which along with the patella, is held in place by four main ligaments and muscles that give it its stability. When the knee juts past the toes, it <u>does</u> begin to carry far greater stress but that stability is challenged but the delegation of stress to the knee is far safer than other options (like rigidly restricting this natural flexion and exponentially loading the hips and lower back, which will lead to a loss of flexibility and still increase the risk of knee tears as we noted above).



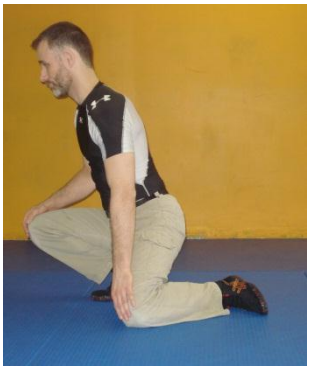
Notice the knees and ankles are rolling inwards, dangerously out of correct alignment.

As noted, the greater risk is not the protrusion of the knee but rather the **sway**—the degree to which the knee leans inwards or outwards over the foot. Generally, a parallel foot position is promoted in the Combat Systema squat as this restricts the risk of knee sway. Most students will be inclined to *"toe out".* When the toes are out, stress is placed on the knee towards the inside as they fall out of alignment with the load of the body. Initially, do not force the toes inward, but simply maintain an awareness of their positioning. By not indulging poor position, and by gradually and comfortably correcting the toes towards a parallel position as the strength and flexibility it developed, the alignment will correct.

<u>EX:</u>

Some degree of outward toe rotation can be safe and acceptable and for some people may even be permanent. One simple way to determine your natural position is to stand on one spot with your feet comfortably apart and to take **three jumps**, as high as you can, on the spot. When you land the third jump, look down at your feet. They will have naturally adopted their strongest natural position. Look first for asymmetries, to see if one toe is opening more than another. This is always the largest concern. Often, injuries create huge imbalances that disproportionately wear the body down. Next, look for ankle and knee sway (generally inwards) and become aware of your current structure. You will likely be able to make immediate micro-corrections, balancing your symmetry comfortably and pushing the knees outward somewhat. When correcting your outward toe positioning, it is far better

to focus on pushing the knees and thighs outwards (which stresses the stronger hip joint) than you are to force the toes inwards (which stresses the weaker ankle and knees). Contracting the knees outward via the hips may make squats much more physically demanding as they engage otherwise unneeded hip and thigh muscles and they may limit the depth of your squat initially, but this will quickly and safely lead to an improvement in toe alignment and flexibility.



A side note: a key notion in many of the Russian martial arts is the idea of exploring the full range of motion of every joint. To this end, we must remember that even knee sway is not inherently evil or always dangerous. It is widely used in movements such as the *hunter* and *Cossack* squat as we will see. These movements can at the very least be considered more advanced basics that assume a solid understanding of the core exercises. First, **we need to restore our bodies to where they should be before we can move them to where we want them to go**.

The third consideration in the Combat Systema squat is the placement of the arms. The arms should be kept naturally at the side, hanging heavily, with the wrists near the sides of the hip. This is also particularly challenging. The arms are like barometers for the other tensions in our body. Generally, they want to flail forward in a zombie position to counter-balance what we lack in range of motion. Naturally, with the context of everyday movement or combative application, we would exploit such a counter-balance and make the movement as lazy and efficient as possible but the purpose of the work at this juncture is restoration, sensitivity and exploration. Creating additional tension in the shoulders and arms will only lead away from clear communication and sensitivity with your own body and lead to further imbalance and injury. As with all core exercises, caution students to perform the motions correctly and within their capacities. **It is better to squat 1 cm correctly than 20cms poorly**.

When beginning the squat, curl the coccyx gently underneath the body. As you begin to descend you will notice you naturally hit a stopping point. As this approaches gently release the tailbone, allowing it to curl out comfortably and proportionately. Do not exaggerate it or indulge. **Simply allow it to happen.** The flexion of the lower lumbar region will allow the hips to tilt and will permit you to descend with balanced structure to a greater depth. Similarly, when returning upwards, begin immediately pulling the coccyx inwards as you move. Let the coccyx and your breathing lead you. Although the tailbone will initially be unable to curl under when you are in your lowest possible squat, the moment you reach the capable height, it will be immediately begin to roll underneath the hips and will provide a release in leg tension and greater strength and structure. This release and activation of the coccyx will become far more relevant during prolonged repetitions, under exertion against loads of weight, or when moving quickly in combative dynamics to evade danger.

INTRODUCING THE FLOATING CENTER OF GRAVITY:

A central concept in many of the traditional Slavic martial arts which finds its roots in the squat, is the notion of a *"floating center of gravity".* While we discuss this in greater detail during our treatment of both breaking structure and striking, it begs a foundational mention here. Simply put, conventionally in most of the Asian martial arts, the body *"center"* is regarded as residing somewhere below the navel (the so-called *hara* or *dantiem*). By comparison, the Slavic arts perceive the body center as oscillating between two extremes—the Asian center which is referred to as the *lunar plexus*, and the *solar plexus*. Like orbiting satellites, these two plexuses are in constant flux.

When we are standing normally, if we were to cut the body neatly in half, we would see that the dissection line runs neatly through the hara/dantiem/lunar plexus. However, if we were to stand on one leg, bending the torso from the hip at a 90 degree angle and fully outreaching the arms overhead in front of us and counter-balancing with one leg behind us (somewhat like a figure skater) our total body length from fingertip to toe could be seen as having greatly elongated and that true center would have in effect crept up to solar plexus height. Any motion with the trunk forward and away from a conventional standing position, therefore causes the center to shift towards the plexus.

Throughout any motion, our body is therefore constantly plunging up and down somewhat like a spinning top and reaching and leaning through space. Both of these forces place our center of gravity in a perpetual state of flux within a spherical realm of motion possibilities. As we will see later on during our discussion of striking, there are three central components that define Combat Systema striking:

1. **Surface:** (the confident and certain area of impact used to communicate the force we generate—the effectiveness of our strike is all about the conductivity of our service)

2. **Kinetic Efficiency**: Many striking arts focus on creating torque and power from the legs abut then largely disregard the succession of joints in the kinetic chain above the foundation which are responsible for communicating the power being created. As a result of muscle *confusion*, much of the power initially cultivated is blocked, like a signal being transmitted through a poorly insulated cable. By comparison, the individual with high muscular intelligence is able to take the power that is generated and to exponentially multiply it during the delivery by optimizing every joint (the so called wave).

3. **Marriage of Gravity:** the third and final component which is most relevant to our deepest understanding of the value of the squat is the idea of marrying the power of gravity with a strike.

The integration of an awareness of gravity in our strikes is directly related to our exploration of changing levels in the squat. Through the squat, it allows us to explore the three fundamental ways that gravity can be employed to maximize our power in a given situation:

1. The first and most obvious manner is by **unifying the swing** with a downward plunging of the body. Think of a basketball player performing a slam dunk. As the weight of their body drops, they drive the ball through the hoop. In exactly the same way, when we take a large, plunging step and simultaneously perform a downward strike, we benefit from a very direct and obvious marriage of gravity. This is generally referred to as the *loaded* or heavy phase of your structure.

2. The second way we can marry gravity is to strike at the opposite extreme of the spectrum, when we reach the apex of an upward motion. Take a moment to imagine you were sitting on a roller coaster. As the roller coaster plunges down a slope to the lowest point on the track, you can imagine a very exaggerated version of the energy you would feel if performing a downward marriage of gravity like the one described in the previous point. Now, imagine what your body would feel like after you have rushed back up the next slope, just at that perfect instant when you have reached the apex of the track. Think for a moment of that feeling of weightlessness that would fill your body as you lift up slightly out of your seat and press upward against the harness of the ride. This is a great way to imagine the feeling of an **upward marriage of gravity**. Similarly, when we think of a basketball player performing a perfect 3-point shot, we can also imagine that instant of weightlessness at that pristine moment when the ball has just left their hands, as they are fading away.

When we perform a squat action, particularly one that is explosive, elastic and buoyant, and we compress to our lowest point, there is a compression of mass and elasticity in our body that can be perfectly timed to deliver heavy, driving hits as we are dropping. We don't always have the time or choice to do this in a fight however and we must also be able to strike on the move. The second essential sensitivity to develop therefore is this idea of striking from the top of our floating center, in that moment of weightlessness. When we explode and bounce up, there is a brief instant at the apex of that motion, where our body is almost free of the burdens of gravity that can be maximized to generate a very different energy in your striking. Remember, if the downward marriage of gravity or *"gravity step"* is

like a slam dunk, the upward marriage of gravity is like a perfect 3-point fade away shot. This is generally referred to as the *unloaded* or empty phase of your structure.

3. The third and final way that we can marry mass is via movement. We have seen that we can gain power by timing our step with the instant where we drop our weight. We can similarly gain power by timing our movement when we reach the floating apex of our bounce back up. The third way is to explore our use of the space in between these two extremes, between the heavy, loaded phase and the empty, unloaded phases of your structure. A good way to visualize the type of energy created in dynamic structural strikes can be to think of a child running a stick along a picket fence. The stick is not moving excessively in itself but is instead being dragged along the face continuously. This is similar to the energy we use when we strike during a movement between the two extremes. If we were to return to our roller coaster analogy and we imagined racing down a slope and simultaneously hammer-fisting someone on the top of the head like a game of whack-a-mole, the instant we arrived at the bottom, we would be benefitting from a downward marriage of gravity as described in point one. If the moment we arrived at the peak of the rails and were experiencing a moment of pristine weightlessness, we reached out and slapped someone, this would be a good example of marrying the upward force of our movement. If midway on our way up or down the slope however we stuck our hand out and chain slapped a succession of people along the rails, this would be an example of striking in transition.

In the first point, we saw that we can drop our weight to gain power. This is most easily distinguished and felt by dropping the foot and taking a step but can also be felt by timing a squat with our hit. In fact, as this awareness becomes more and more sensitive, the amount you need to drop your body to feel this power is quite minimal and subtle. In the second point we saw that we can launch our strikes from a position of weightlessness. This is particularly important to develop because most people feel a need to *reset* before striking. They are always looking for a traditional position of balance before they launch their strike. Often, this extremely advanced tactic of power generation from a floating center is completely hidden in plain sight. If you look at the legendary Russian fighter Fedor Emelianenko, you will see an example of someone who was able to generate enormous striking power while on the move. Early on, people mistook his approach as sloppiness and

Fedor striking powerfully without a solid stance.

lack of finesse. As time went on however and his impressive victories mounted, the audience became more informed and they started to analyze how he was using whip-like motions from a floating center, even while retreating, to deliver knockout power. Training footage of Fedor on youtube shows him arduously training this by running backwards as he strikes, swinging hammers as he walks backwards and a host of other seemingly bizarre drills.

One important distinction to make is that in the first two examples, the body often leads the motion but does not necessarily need to. You can step or squat a fraction of a second before you strike or time it exactly. You can rise up and float for a moment before striking or time it exactly. In the third example however, striking during the movement, it is best to let the body lead. The hips for example can pivot a fraction of a second before and drag the arm into the target, or else the sternum can perform a subtle wave and rip the arm forward. Similarly, the tailbone can curl and launch the leg up, etc. This is a rather subtle and complex distinction initially and requires focused individual exploration.

Each phase of our structure is unique and can be maximized to our benefit us differently as we will see in our discussion of breaking structure and striking. Downward marriages of gravity are measurably the most powerful and rooted type of strike since they benefit from your full body weight being behind the hit. They are incredibly solid and heavy but come at the expense of creating density in our own body and make us someone more dense to receive strikes and potentially less adaptive and mobile. Upward marriages of gravity sacrifice density and weight and must generate power from whipping energy in the limbs but benefit from a lighter and more adaptive body and often enjoy a longer and more intimidating reach. Dynamic marriages of gravity fired during active motion require very little physical energy (think of it like you are just holding your striking weapon out like a knight holding a lance during a joust. The power comes from your total movement of your body and not just the arm). Dynamic strikes however often suffer from a lack of precision.

An understanding of each phase of our structure is imperative if we intend to be able to fully weaponize our movements and posture. For now, plant this seed in your soil. We will come back to it all in just a little bit. What matters is that we begin to see that there is more to striking than just staying balanced and firing shots from a stable base like a tank.

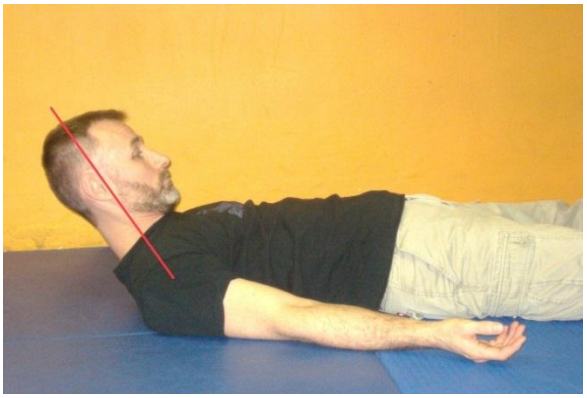
CORE EXERCISE #4—THE STRAIGHT BACK SIT-UP:

The purpose of the Combat Systema Straight Back Sit-Up is:

- To **condition** the stabilizing muscles of the trunk
- To understand the how this stress affects our remaining body, particularly our arms and legs
- To learn how to **release** these excessive tensions efficiently as possible, with minimal changes to our posture, by releasing areas of excess tension (i.e. the shoulders, the hips, the hands, the knees, etc.)
- To integrate **correct breathing** with these motions

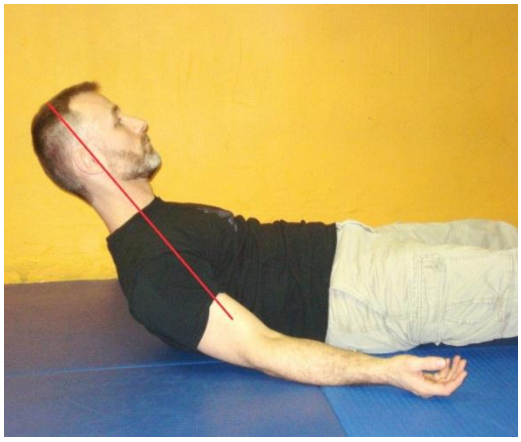
Given the above-mentioned objectives, the major distinction in our approach is the maintenance of a straight back throughout the full range of motion whereas most abdominal exercises curve the spine. This will prove to be extremely challenging for most initially, often even counter-intuitive. To begin the exercise, I have found it generally easiest to start by laying on the floor. Inhale through the nose and exhale through the mouth a few cycles without moving, relaxing the body and ensuring that the body feels symmetrical. As an instructor, regularly correct your students here with light contact as many will be out of alignment before beginning (crooked head and shoulders). Emphasize beginning in the straightest possible alignment.

It can be helpful to begin by inhaling and raising only the head (bringing the chin to the sternum). Hold the head up for a few seconds while holding the breath comfortably and without strain, then exhale and lower the head gently to the floor. Repeat this 3-5 times. This is a fantastic isolation for safely and quickly strengthening and stretching the neck that will help teach the student not to transfer pressure into the face (particularly the eyes and mouth). This is also an excellent complement to the cervical arch stretches introduced earlier as well as a great movement for activating and isolating sub-clavian breath awareness.



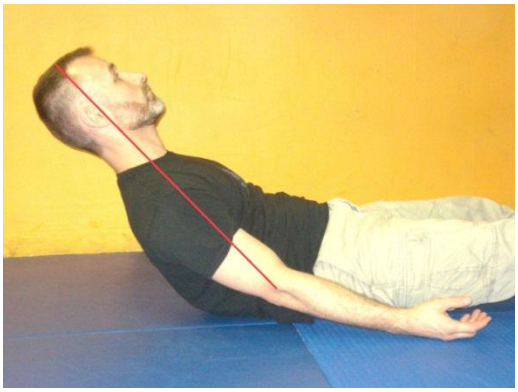
Begin by isolating the lift of the head only, raising the head and neck together in one straight piece.

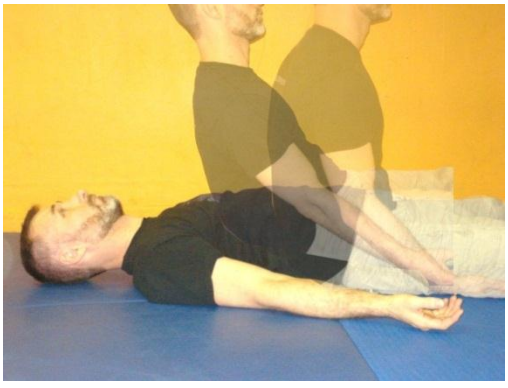
Once the neck has been awoken, next, raise the body from the shoulders. Visualize a straight line running through the core of the body from the crown of the head to the core of the body behind the sternum. Seek to raise the base of the shoulder blades just off of the ground. Again, inhale to come up at first and exhale down, holding the lungs comfortably full and empty at the respective extremes for a few seconds absolutely free of strain. *Repeat 3-5 times.* This will lay the foundation for the straight back sit-up and help the student understand how tension collects in the solar plexus (which is the common failure point in the structure of this movement). This is a perfect complement to the thoracic stretches introduced earlier and a great way to isolate sensitivity to intercostal breathing.



Next, isolate from the crown to the base of the shoulder blades to expand the circuit of contraction.

The last phase of isolation involves isolating the solar plexus. This is by far the most difficult step. The third and final preparatory phase is to inhale and raise the torso in a straight piece until only the belt is touching on the ground. The elevated torso will rise up to roughly a 45 degree angle. Hold the pose there for a moment and then exhale and return to the ground in one solid piece. The tendency will be to raise the head first when coming up and to collapse at the solar plexus level when going down. Instead, try to visualize being lifted by a string or wire from the sternum area, leading with the sternum on the way up and lowering from the back of the skull first, as if you were being supported by the skull and hydraulically lowered to the floor. If the solar plexus bend is of particular concern or difficulty, it is advisable to practice holding the 45 degree angle for longer. Focus on burst breathing during any static hold to fuel the body with the necessary energy and oxygen. This phase is a perfect complement to the lumbar stretches introduced earlier and a great way to isolate abdominal breathing while reinforcing sufficiency and the avoidance of excess bloating and strain in the abdomen.





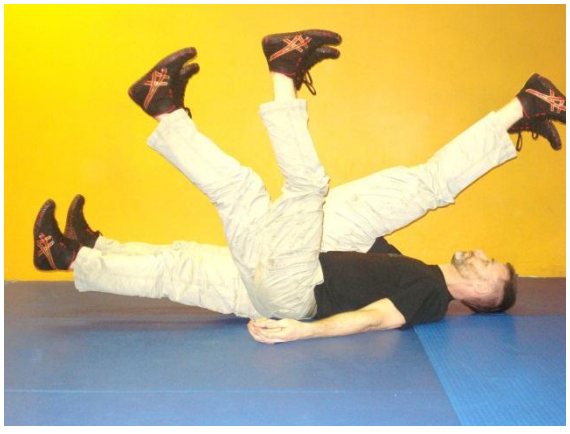
Once you have run through these isolation exercises, you will generally notice a higher degree of capacity and sensitivity when performing the fluid straight-back sit-up. Leading with the breath is particularly helpful for this sit-up, beginning with 10-15% of your breath phase before moving up or down. Generally, inhaling on the way up will help avoid collapsing. As you get more comfortable, play with alternate patterns, such as in and out during each motion, and exhaling while rising. Constantly study where your body is stressed and how to lessen that tension to make the movement an experiment in efficiency.

CORE EXERCISE #4—THE LEG RAISE:

The purpose of the Combat Systema Leg Raise is:

- To **condition** and **stretch** the stabilizing muscles of the trunk
- To understand how this stress affects our remaining body, particularly our limbs
- To learn how to **release** these excessive tensions as efficiently as possible, with minimal changes to our posture
- To integrate **correct breathing** with these motions and to learn how to breathe in a compressed and stressed state

The Systema leg raise is the compliment to the straight back sit-up and for this reason it is usually done immediately before or after the sit-up in warm-up sequencing. Many individuals are accustomed to performing leg lifts with the backs of their hands wedged under the buttocks to support their lower back. **I strongly urge all instructors to eliminate this habit in students immediately** as this will only serve to reinforce and insulate existing weaknesses. Instead, hands should be kept naturally by the sides. Emphasis during the preparatory phase should be placed on curling and contracting the coccyx to strengthen the *"floor"* of our core muscles. Next, attention should be brought to the body center, 2-3 inches below the navel (lunar plexus). Develop the awareness to gently contract the center towards the spine while maintaining the coccyx contraction. Finally, develop an awareness of the solar plexus area, pulling the muscles again towards the spine. This contraction from coccyx to plexus will create the correct awareness to seal the body and engage the full structure of the abs.



When performing the leg raise, begin by first raising the legs to a **90 degree angle**. Generally, students will have difficulty straightening the legs fully at the 90 degree raise therefore attention should be given to this first half of the motion. Practice raising the legs up to the 90 mark and straightening the knees to their maximum capacity, then lower them gently back towards the ground. This repetition alone will begin to dynamically stretch the hamstrings, articulate the hips and build breath and contraction awareness in the legs and core. Initially, it is usually easier to practice inhaling while raising the legs, holding the elongated contraction at 90

degrees for a full second with full lungs and then lowering on the exhaling and holding the lungs empty for a few seconds before repeating. After 5-10 repetitions, begin at the 90 degree extension and practice the second half, raising the legs as far as possible overhead.

Full compression is not physically possible for all students, nor is it necessary to reap the benefits of this work. Respect your limits and find the most comfortable compression position you can hold.

Many students will have difficulty with the second half of the leg raise. This is due first to a lack of flexibility, to mechanical impossibility (if they have larger stomachs for example), injuries in some cases, and a general amount of inherent anxiety in this position. While in the leg raise, most individuals will be relatively comfortable for the initial 10-20 seconds and then need to take a deep, sighing breath. Others will begin to panic at this point and fall out of the position. This is because their initial reserve of oxygen has been consumed and they are unable to feel how to breathe in this position. Begin by cautioning students that this will happen and instruct them to take **small, sipping inhales** through the nose and small, comfortable exhales through the mouth. This alone will prolong their hold time and allow them to begin the work inherent in this position. I am a strong advocate of holding the initial leg raise for 30-60 seconds to pass this wall and then to proceed to faster repetitions. Students will gain a better understanding of their capacities, understand which muscles are involved and which should be relaxed and most importantly they will understand how to breathe. There are numerous breathing exercises detailed specifically in this position at the beginning of the first disc of Primal Power 1 that are particularly helpful here.

Students that lack flexibility in the leg raise may benefit from resting their thighs on their hands or forearms. Additionally, a wall, Swiss ball, or partner can be used. Students that possess the flexibility to touch their feet comfortably to the floor should be encouraged to work on elongating the feet away from the head to deepen the stretch throughout their back and hamstrings.

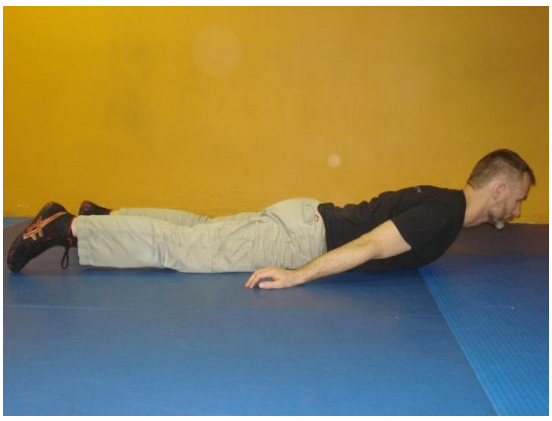
When lowering their legs back to the floor, students will generally feel the junction point between the lumbar curve and the thoracic arch (L4/L5). For health benefits, it is important to slowly roll over this point with control and to avoid falling past it in anticipation of pain. Particularly when working on hard surfaces it is beneficial to rock slowly back and forth a few times over this region to soften the associated tissue and learn how to release the area and receive it inside the body. In cases where this is still too painful, students should practice rolling around this protuberance with the smallest and most subtle possible circular motion. Flexibility between the spinal arches is a huge source of mobility in the torso.

CORE EXERCISE #5—THE AIRPLANE:

The purpose of the Combat Systema airplane is:

- To **condition** and **stretch** the stabilizing muscles of the back
- To understand the how this stress affects our remaining body, particularly our limbs, neck and ribs in this position
- To learn how to **release** these excessive tensions as efficiently as possible, with minimal changes to our posture, by releasing areas of excess tension (i.e. the shoulders, the hips, the face and head)
- To integrate **correct breathing** with these motions and specifically to learn how to perform sub-clavian breathing when the ribs and abdomen are intensely engaged.

As noted earlier, the basic principles of the four preceding core exercises are based on the work found in Ryabko Systema. Our interpretation is distinct on many of the points detailed above. Another area of strong distinction is the belief that the 4 core exercises of Ryabko Systema neglect sufficient targeting of the back muscles. To this end, we regularly employ the addition of a 5 foundational exercise—*the airplane*.

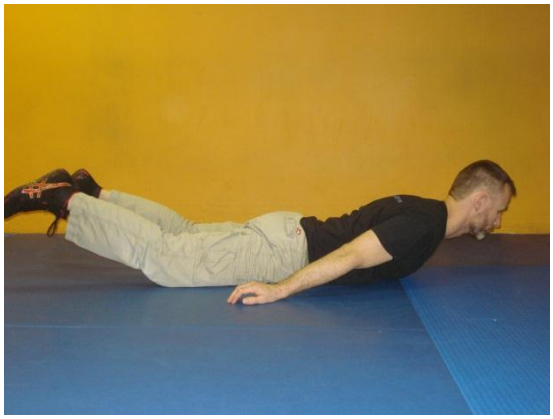


To perform the airplane, begin by simply laying on your stomach. Ideally, keep only your head elevated so that your face is able to point directly to the ground without touching your nose or chin and so that your spine is completely straight and untwisted. Begin by simply breathing as your neck and supporting back muscles begin to work. This is considered your reference position for the airplane.

Slowly, inhale yourself up to an elevated position, lifting your upper body completely off of the ground. Initially, hold this this for only a second with the lungs comfortably full and then slowly exhale yourself down. Repeat this 5-10 times. As you become more comfortable, play with reversing the breathing pattern and also with simply holding the elevated airplane for prolonged periods of time. A 30-second hold is generally a comfortable starting period for most people.

As the body becomes more accustomed to this type of work, you may wish to play with alternative variations which are more demanding. These can include also lifting the legs off of the ground. When lifting the

legs, keep them fully elongated but comfortably elastic. Think of creating a slight space under the base of the thighs (just above the kneecap) and gently arching the body upwards and backwards in one connected arch.



With the legs elevated

More difficult variations include gently elevating the arms, first along-side the torso (easiest), then out to the sides in a cross (moderate) and finally to a forward *"sky dive"* position. It is important to always respect your limits and to work your way up to and through each phase. Never rush, regardless of how physically fit you may be. We are dealing with your spinal health. One thoughtless action can lead to a lasting injury.

The airplane position is an essential addition to the core exercises that helps target a much neglected area of the body, while serving as an effective bridge between the other four motions when creating organic movement chains based on these foundation positions.

The "Skydive" position

A free 1-hour video of the core exercises is available on YouTube on our channel (Systema Canada), which illustrates all of the points specified and goes into greater detail. As specified, I strongly encourage the incorporation of the core exercises at the outset of every training session and for that matter at the outset of every day. Even a single slow repetition of each movement is an excellent way to take inventory of where your body is at. Naturally, I strongly encourage the incorporation of any additional exercises an instructor deems safe and beneficial to the topic at hand. While I do make a point of always utilizing the core exercises, I also strive to constantly provide creative and challenging new exercises and variations that will be attainable and scalable to all fitness levels, approachable for the newcomer and at the same time, fresh and exciting for those students that have been with me for over 15 years.

That being said, even the initial core exercises can be customized countless ways to make things new and challenging. Here are just a few ideas:

- Practice holding a static variation of each of the core exercises. Initially, have students try holding for 1 minute and work them gradually over time to 5 minutes each for particularly intense workouts. In my personal experience, holds longer than 5 minutes do not provide a sufficient return for the investment of time. The purpose of these exercises is to study *how*, *when* and *where* tension develops in the body and then through visualization, correct breathing, body control and selective contraction to learn how to **dissipate excessive contraction** and target only the necessary muscle groups. This is a hugely psychological experiment and many students will have the tendency to pity themselves or inflate the

demands of the hold past reasonable norms.

- **Remember to continually remind them that holding positions is largely a question of structure and correct breathing.** Students may wish to visualize *inhaling* the pain when it forms in the muscles by the nose and to exhale it by the mouth to help dissipate it. Additionally, they may wish to experiment with contracting the muscles that are in pain even harder and then releasing them to help increase blood flow and wash away the lactic acids and excessive tension. In cases where the pain begins to overtake the active thoughts of the student, burst breathing can be an extremely effective tool for regaining control and engaging the frontal cortex to override emotion.

- The same positional holds may be held in more extreme variations (45 degree bends, 90 degree bends in the case of push-ups or squats, or one inch above capacity).

- Students can practice fusing the core exercise into a slow and graceful **flow drill**. For example, slowly squat until the hands can reach the ground, then shoot the legs back into a push-up position and slowly perform a push-up. At the apex of the push-up, perform an airplane, transition into a slow shoulder roll onto your back and perform a straight back sit-up, then lower your torso back down to the ground and perform a leg lift, rolling backwards into a squat again and re-begin the chain. For an extra challenge, allow students to fuse the basic exercises together in their own variations.

- Working with a partner, practice having a student balance on your body with as much dead weight as possible, but maintaining enough adhesion and presence to surf your body and remain attached. For example, they may drape themselves across your back during a push-up, piggy back during a squat, or lay across your torso during a leg lift or sit-up. Initially, you may want to have students simply hold a static position against the weight and work them up to smaller ranges of motion (6 inch push-up, 6 inch squat, etc.).

- Working with a partner, perform each set of the core exercises, taking turns slowly and heavily pushing your partner. The goal of the exercise is to yield to the incoming force without changing the rhythm of your exercise. For example, absorb pushes to the trunk as you squat, to the shoulders and arms as you push-up or to the trunk as you sit-up.

- Working with a partner, slowly and heavily grab each other as you perform your core exercises. Use the movement of the core exercise to lead you to an escape from the hold. Initially, begin with large shoulder and torso hugs and grabs. The goal of the exercise is to practice evading and slipping out of the holds while maintaining continuous motion in your exercises.

- Working with a partner, lightly slap massage the muscles of the body with a short stick. The goal of the exercise is to aggressively encourage the student to relax excessive contractions in unneeded muscle groups while performing the core exercises. This is extremely challenging work. Be extremely mindful about avoiding contact with any bone surface, particularly the spine. Only work the muscular tissue.

- Practice performing each core exercise while maintaining the strongest possible contraction in one arm during push-ups, one leg during squats and one side of the trunk during the core exercises. The goal is to try and maintain as much relative relaxation as possible. You may wish to allow a number of repetitions to develop this very complex sensitivity before switching sides.

- Practice rotating and stirring your muscles during each of the four core exercises. During the push-up, you may wish to begin with performing small hip rotations as you perform your push-ups (yes, this one looks odd). In time, move up to stirring the abdominal region and then finally stirring only the sternum. During sit-ups, imagine having a pen sticking out of your solar plexus and drawing small circles in the air as you sit-up. During squats, practice performing small circles with the knees as if your tailbone were drawing a small circle on the floor as you squat. This is a great sensitivity and muscle activity challenge.

- Similarly, practice performing small rotations with small burst breaths to help pump your body through each of the core exercises. For example, in the push-up position, burst breath while performing small shoulder rotations. With each rotation, lower yourself one inch and then upon reaching the ground repeat the same idea while pumping yourself back up. The goal is to really develop a feel that each breath is powering the rotation and that each rotation is literally jacking the body up and down. Use shoulder rotations as the focus during each of the core exercises.

- Practice performing the core exercises in various states of imbalance. During the sit-up and squat, practice contracting both arms in various positions (crucifix, reach forward, reaching overhead in a victory pose, reaching backwards like a ski jumper). Perform a number of repetitions in each position to develop awareness and sensitivity to the different demands they are placing on the body. During leg lifts and push-ups, practice doing the same with the legs, splitting the legs to various degrees, crisscrossing them, etc. You can also practice holding the legs and arms in asymmetrical positions once the body is warmed up.

- Practice walking in each of the core exercises. Hold a low squat and take small and mindful steps as if the head were suspended by a cable. Be cautious about maintaining straight spine alignment to protect and strengthen the lower back. During pushups, take small steps on the palms or fists. Be mindful of each hand as it gently greets the ground and vary the angle and positions. During the sit-up, hold the torso at a 45 degree angle and practice walking with each side of the buttocks. This is extremely demanding (even worse backwards than it is forwards). In the leg lift, practice walking on the shoulders. Initially, the temptation will be to use the triceps and elbows on the ground to push off and balance but ideally, work up to walk only on the shoulders, keeping the arms and head completely off of the ground.

COMBAT SYSTEMA CURRICULUM

1. **HEALTH AND CONDITIONING**
    - i. Breath Work
    - ii. Joint Mobility
    - iii. Core Exercises
    - iv. Selective Contraction Work
    - v. Bodywork and Massage

2. **GROUND FLOW**
    - i. Preparation for Compression
    - ii. Preparation for Torque and Joint Stress
    - iii. Kinetic Chains
    - iv. Engaging the Ground

3. **RESTRAINT TACTICS**
    - i. Responsible Power-Use of Force
    - ii. Preparing Structure
    - iii. Breaking Structure
        - a. Tree Theory
        - b. Triangulation
        - c. Elongation
        - d. Stirring the Joint
        - e. Density and Voids
    - iv. Basic Locks
    - v. Basic Pressure Points and Vital Areas

4. **RENOVATED GRAPPLING**
    - a. Preparation for Grappling Stress
    - b. Combat Clinching /Escape From Holds
        - a. Clinching Tree
        - b. Additional Hold Escapes
        - c. Joint Mass
        - d. Planes of Movement
        - e. Framing
        - f. Tracing
        - g. Dirty Boxing
    - c. Throws and Takedowns
    - d. Ground Fighting

5. HAND-TO-HAND

a. 3 Striking Energies

a.Antagonistic
b.Unified
c.Compound

ii. Preparation for Striking

a.Open Handed (by segment)
b.Closed Handed (by segment)

iii. Strike Defense

a.Mobility and Evasion Drills
b.Shielding
c.Catches, checks and traps

iv. Striking Dynamics

a.Long Work (with follow through)
b.Short Work (snapping)
c.Long Absorption (as whole or part)
d.Strike Absorption (internal)

v. Body Planes:

a.Striking From the 3 Planes
b.Striking Through the 3 Planes

vi. Leg Boxing:

a. Preparation and Mobility
b. Absorption and Deflection
c. Stretching the line
d. Stealing the Step
e. Shadowing

vii. Combinations
viii. Renovated Boxing

6. WEAPONS:

i. Stick Defense

a. Stick Evasion and Mobility Drills
b. Preparation for Contact
c. Dynamic Evasion
d. Deflections
e. Counter Measures and Tactics

b. Offensive Stick

a. **Strengthening and Preparation**
b. **Basic Swings and Hits**
c. **Basic Locks and Assisted Holds**
d. **Basic Retention**

c. Knife Defense

a. **Body Intelligence Drills**
b. **Deflections and Trappings**
c. **Counters and Disarms Tactics and Strategies**

d. Offensive Knife

a. **Strengthening and Preparation**
b. **Handling, Drawing and Carrying**
c. **Basic Attacks**
d. **Holds**
e. **Retention**

v. Gun Defense

a. **Preparation and Body Intelligence**
a. **Deflections, Traps and Disarms**
b. **Tactics and Strategies**

vi. Offensive Gun

a. **Handling, Carrying and Drawing**
b. **Engaging the Ground**
c. **Ground Flow**
d. **Retention**
e. **Tactics and Strategies**

7. COMBAT PSYCHOLOGY:

i. Combat Goals

a. **Responsible Power / Force Continuum**
b. **Customizing Mission-Specific Parameters**

ii. Physiology of Combat Stress:

a. **Brain Structure**
b. **Flinch Response (fight, flight, freeze)**
c. **The Flow Solution (The Power of Slow)**
d. **Heart Rates and Metrics (existing research)**

iii. Proxemics:

a. **Blading**
b. **Cutting the Line**

c. **Defining Limits**
d. **Tactical Breathing**
e. **Tactical Vision**
f. **Tools, Attributes, and Delivery Mechanisms**

iv. Verbal Skills:

a. **Command Presence**
b. **Introductions**
c. **Empathy**
d. **Reiteration / Reframing**
e. **Instructions**
f. **Probing**
g. **Language Selection**
h. **Breath Integration**

v. Mindset:

a. **Visualization**
b. **Spinal Loading**
c. **Predator Prey Duality (victimizing the aggressor)**
d. **PTSD**
e. **Post Combat Repercussions**

THE CURRICULUM CONTINUES IN MODULE 1…

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